Department of Veterans Affairs
Quality Enhancement Research Initiative (QUERI)
&
National Cancer Institute

Colorectal Cancer QUERI

Annual Report and Strategic Plan
November, 2005

Laura Kochevar, Ph.D.
CRC QUERI, Research Coordinator
Minneapolis VA Medical Center
One Veterans Drive (152/2E)
Minneapolis, MN 55417
Ph - 612.467.5355
Fax - 612.727.5699
Email – laura.kochevar@med.va.gov
Web - www.hsrd.minneapolis.med.va.gov/CRC/CRCHome.as

November 28, 2005

Ms. Shirley Meehan, PhD, MBA.
Acting Director
HSR&D Service (124Q)
Department of Veterans Affairs
810 Vermont Avenue NW.
Washington, DC. 20420

Re: CRC QUERI Annual Report and Strategic Plan

Dear Dr. Meehan,

Enclosed, please find the Colorectal Cancer QUERI's Annual Report and Strategic Plan.

The QUERI has enclosed one unbound original, (one-sided) and 26 bound, two-sided copies. They have made some minor changes to their Core Plan (the addition of Adam Powell as their IRC, for example) and will be forwarding this electronically to CIDER for inclusion on the website. A copy of the Core Plan is also included in this submittal.

They are submitting six copies of the C4 Cancer Care Collaborative Training Manual from ACA which is identified as an attachment to the report. These will arrive under separate cover.

Please contact Laura Kochevar, PhD., Research Coordinator of the QUERI at 612-467-5355 if you have questions or need additional information. Thank you for your continued guidance and we wish you a happy holiday season.

Sincerely,

Michael Levitt, MD.
ACOS for Research
Minneapolis VA Medical Center
One Veterans Drive
Minneapolis, MN. 55417

Encls.

Table of Contents

Appendices

List of Tables

List of Figures

List of Attachments (non paginated)

CORE PLAN

Part 1. Center Mission, Goal and Scope

I.1 Clinical Focus and Scope

Our long-term mission is to promote the translation of research discoveries and innovations into patient care and systems improvements in order to reduce the incidence, late detection, suffering, and mortality from colorectal cancers among all veterans. The CRC QUERI has identified a critical performance gap in providing complete diagnostic evaluation (CDE) following positive CRC screening. Our current implementation focus is on producing measurable, rapid and sustainable reductions in this performance gap. The scope of research conducted by QUERI affiliates covers the entire continuum of detection and care represented by our mission statement. These research programs provide the foundation for a future shift in implementation focus.

I.2 Significance and Consequences

Colorectal cancers (CRC) rank third among causes of cancer deaths, account for approximately 10% of all new cancer cases, and are the third most common cancers among men and women in the U.S.[1] There are approximately 148,000 cases (107,300 colon and 41,000 rectal) each year (SEER 2002 estimate). About half of people with colorectal cancer will die from the disease due to tumor spread. Stage at diagnosis is the primary predictor of prognosis. The 5-year survival rate is over 90% for people whose colorectal cancer is found and treated in Stage I[2] as compared to 9% for people with Stage IV disease.[1] Unfortunately, only one third of colorectal cancers are found at an early stage,[3] in large part due to low rates of screening and diagnostic follow up. Although data from the National Health Interview System has shown gradual and modest increases in the use of screening procedures for colorectal cancer from 1987 to 1998, such increases are unequally distributed in the population with African Americans at greatest disadvantage.[4, 5] The highest colorectal cancer incidence rates are found in African Americans, followed by whites and Asian/Pacific Islanders. American Indians, Alaska natives, and Hispanics have the lowest colorectal cancer rates.

Deaths from colorectal cancers are estimated at 56,700 per year, shortening life expectancy on average by approximately 13 years in those who die of CRC.[6] A person at age 50 has about a 5 percent lifetime risk of being diagnosed with colorectal cancer and a 2.5 percent chance of dying from it.[7] Colorectal cancer has a significant economic impact on health care systems, patients, families, and society. The total costs attributed to CRC in the

US range from 5.5-6.6 billion, with 80% of these due to inpatient medical care costs, making CRC among the costliest cancers to treat.[8-10] Indirect costs such as losses in time and economic productivity resulting from cancer-related illness and death, and intangible costs in pain and suffering, are difficult to over-state. Despite advances in supportive and palliative care, CRC continues to cause devastating suffering due to pain, depression, loss of functioning, and fatigue. Furthermore, the physical, social, and emotional impact of caring for a cancer patient can have a significant deleterious effect on caregivers and other family members. [4, 5, 11-31]

I.3 Treatment/Management Evidence base for Colorectal Cancer Screening (CRCS), Complete Diagnostic Evaluation (CDE) and Recommended Treatment (RT).

Screening/Early Detection. There is a *strong evidence base* for the finding that CRCS, followed by diagnostic imaging CDE of patients with positive screening results can reduce mortality from, and incidence of, colorectal cancer when prompt initiation of RT follows diagnosis.[2, 32-37] Each step in this process (CRCS, CDE, and RT) must be in place or there is no benefit to screening, thus all efficacy studies of CRCS presume appropriate use of CDE and RT in their protocols.[2, 32-37] The evidence regarding choice of specific CRCS modality, timing and choice of CDE modality, and empirical evidence in support of current RT are less complete. Nevertheless, there is a high degree of consensus among professional organizations in their guidelines (provided in Appendix 1). Screening Modality: The USPSTF cites insufficient evidence to prefer any screening modality over another on the basis of efficacy, cost-effectiveness, or safety. Likewise, the VA preventive care performance measure and the official standard of care for the VHA (VA National Cancer Directive, 2003) supports the use of fecal occult blood test, flexible sigmoidoscopy, or direct screening colonoscopy (DSC) for CRCS. Extensive work conducted by the CRC QUERI Clinical Coordinators and others provide strong evidence for the efficacy and cost effectiveness of the colorectal cancer screening process for early detection and prevention of colorectal cancer death.[2, 7, 33, 34, 36-48] Good quality evidence from 3 randomized trials shows that a screening process initiated by a **fecal occult blood test (FOBT)** reduces mortality from colon cancer by 18%. [2, 42, 49] Evidence from randomized trial and case-control studies support the efficacy of a screening process initiated by **flexible sigmoidoscopy (FS).**[50-54] In contrast, the evidence in support of **double contrast barium enema (DCBE)** as a screening or diagnostic tool is fair, at best, and indicates DCBE may have low sensitivity for detection of polyps.[55] There is good evidence of DSC's efficacy at finding precancerous polyps.[36, 45, 56-58] However, the effect of widespread adoption of DSC on overall screening *rates* is unknown. Other screening modalities continue

to be developed but there are insufficient data to recommend any of these options at present.[47]

The evidence base for Colon and Rectal Cancer Treatment is uneven and difficult to characterize since it varies by stage, treatment goals (cure or palliation) and other clinical factors (e.g., location of malignancy, effect on symptoms and functioning). Since a full review is beyond the scope of this report, we review the basic evidence below. Interested readers may wish to refer to Appendix Two, which provides a review of the evidence as well as NCI's *Colon Cancer (PDQ®): Treatment*.

Treatment. There have been few randomized trials testing the stage-specific benefit of a given treatment over another, resulting in huge gaps in our knowledge. **Surgery** for early stage CRC is the standard of practice and often curative. The number of case studies indicating that local recurrence of cancer is much lower with complete resection with no residual tumor renders a randomized trial unethical. The use of surgery in metastatic CRC is unclear, controversial, and (in the absence of uncontrolled bleeding or obstruction) hotly debated. **Radiation** is recommended for Stage II and III rectal cancer based on case study evidence. Similarly, there is some evidence that the use of preoperative radiation reduces local recurrence and complication rates. Timing of surgery and radiation is controversial for rectal cancer. Two randomized, non-blinded control clinical trials showed that surgical therapy along with adjuvant **chemotherapy** with postoperative Levamisole or 5-FU-Levamisole showed significant improvement in disease-free survival for patients with Stage III colon cancer vs. surgery alone, but overall survival benefits were of borderline statistical significance. Currently, assessment gaps between best and current practice rely on standards of care for stage-specific treatment of colon and rectal cancers established by expert consensus.

Pain, Supportive Care, and Palliation. The evidence base for treatments intended to reduce the suffering associated with CRC and its treatments is also variable. The World Health Organization developed a widely accepted analgesic ladder for titration of pain medications in cancer patients and its effectiveness has been documented in large case series. This provides a starting point for evaluating quality of pain control; however, it does not provide for matching the options for cancer pain control with individual needs, preferences, and likely responses. VA has established a strong performance measure for conducting pain assessment, although the best methods for assessment remain unclear. There have been very few controlled clinical trials of treatment for cancer-related fatigue and of these the treatments are rarely supported. However, most of these trials had small sample sizes and so

may have been underpowered to detect effects. Positive outcomes have also been reported for a variety of psychosocial interventions and exercise, although the lack of methodologically strong randomized trials and/or replication of an approach weakens these findings.

Cancer communication and shared decision-making has been associated with patient satisfaction and adherence. Although much discussed, there is little definitive evidence regarding what makes a difference in cancer care. We believe that decision aids may be useful as there is good evidence that decision aids are helpful in other contexts. However, there have been few tests in cancer care with power sufficient to detect effects.

I.4 Current Practices and Quality/Outcome Gaps

Primary Prevention: Due to the unclear cost/benefit ratio of promoting any given risk or protective factor, we are not focusing on primary prevention at this time.

Secondary Prevention and Early Detection (CRCS and CDE): According to EPRP findings for FY 2004, the CRCS performance measure averaged 74%, ranging from 65% to 80% at the VISN level and 46% to 100% at the facility level for veterans consistently utilizing VA primary care. Recent VA data show that 48% of veterans diagnosed with colorectal cancer were not screened, but presented with signs and symptoms[1]. The most powerful predictor of CRC screening and stage of diagnosis within the VA is frequency of primary care utilization[60, 77]. Furthermore, the mean time from initial eligibility for CRCS and compliance within the VA is 2.4 years[2]. Together, these data indicate that successful reduction of CRC morbidity and mortality within the VA will require a binary strategy: 1) using a community health approach to reach out to veterans who use the VA system, but use VA primary care sporadically and 2) developing tools to help clinics, providers and patients attain compliance with limited (e.g. single visit) exposure to the concept of CRC screening.

Analysis of FY 2002 EPRP data completed by CRC QUERI researchers[59] indicate that, overall, 54% of veterans with positive FOBT results fail to receive CDE within six months. Of these, 40% are not referred for follow-up while 14% are referred but do not complete the exam. Female and African American veterans were less likely to receive CRCS while older, higher income, higher utilization veterans were more likely to receive CRCS. DSS estimates mean wait time for endoscopic clinic appointments at 83.1 days, but Fisher and colleagues[60] estimate mean time to actual CDE completion is 276 days. Data from 3 of the 4 CRC SAFE sites indicate CDE referral failure in 65%, 60%, and 25% of veterans. These same sites

[1] Unpublished chart review findings from the CMO workgroup on colorectal cancer, technical assistance provided by CRC QUERI.

[2] Data from CRC-SAFE data system, extracted from VistA, Austin and Medicare datasets.

experience CDE appointment completion gaps of 15%, 20%, and 56% respectively. While the net CDE rate in these facilities is comparable (28%, 32% and 34%) these sites clearly have different intervention needs: programs directed at increasing referral rates in the first two sites and appointment completion in the third. Work by Kochevar and colleagues revealed that a primary predictor of efficient endoscopic resource utilization is appointment adherence. Based on preliminary data, Dr. Kochevar estimates that a modest 4% absolute increase in appointment adherence may support up to a 25% increase in colonoscopy (CS) capacity without affecting capacity to perform other endoscopic procedures.

CRC Treatment: The National Cancer Policy Board of the Institute of Medicine recently concluded that "for many Americans with cancer, there is a wide gulf between what could be construed as the ideal and the reality of their experience with cancer care."[61] Nationally, the treatment and outcomes of colorectal cancer vary widely by key patient characteristics, such as race or age, and among different types of providers,[62-68] but the reasons for these differences are not well defined. Little is known about CRC treatment variations within the VA.

Supportive and Palliative Care: Little is known about variations in palliative and supportive care in VA. In general, there is considerable evidence that cancer pain is under-treated, largely due to inadequate assessment.[69, 70] Furthermore, there is considerable evidence of significant race/ethnicity disparities in pain treatment.[71-75]

End-of-Life Care: This is a crosscutting issue, and is highly relevant for a significant percentage of patients with CRC. This will be an important area of future research.

I.5 Significant Influence on Current Clinical Practices and Outcomes

VHA programs:

Office of Quality and Performance: CRC QUERI *is engaged in an intensive partnership with OQP: The Colorectal Cancer Care Collaborative, or C4. C4 is providing extensive quality improvement support to 21 VA facilities, one from each VISN.*

Acute Care Strategic Health Group Oncology Program: CRC EC Patel is the director of the SHG Oncology Program.

VA GI Field Advisory Committee: CRC ECs Bond and Provenzale are members of the GI FAC. QUERI has also provided technical support to the GI FAC's leadership opinion survey.

GI Endoscopy Advance Clinic Access (ACA) workgroups: The goal of the GI ACA is to reduce GI endoscopy wait times by managing clinic supply and demand. The ACA groups have the ability to enact rapid clinical change; yet they are frequently in need of needs assessment and evaluation support. To date, CRC QUERI has provided consultation to several VISN and

Facility GI ACA groups. We are partnering with the National ACA Measurement Committee to improve monitoring of CDE delay. *ACA is a major partner in the C4 collaborative.*

Oncology Program Evaluation Team (Oncology GPRA): The Oncology GPRA is charged with developing a plan for independent (non-VA) evaluation of VA oncology clinical practices. The CRC QUERI has shared its information and plans with this group and Co-Clinical Coordinator Dawn Provenzale is a member of the steering committee.

VA Central Cancer Registry: In collaboration with VIReC representatives Hynes and Perrin, CRC ECs Dominitz, Provenzale, and Kochevar have recently received funding for an evaluation of the VA Central Cancer Registry. The data provided by the registry are essential for monitoring quality of care and progress toward early detection and prevention. We continue to work with the registrar to resolve privacy and legal issues

National CMO Workgroup: This group of VISN CMO's conducted a needs assessment survey and chart review of CRCS and CDE practices. The CRC QUERI provided analysis and interpretation of these data. Mark Enderle, VISN 16 CMO *is a member of CRC QUERI Executive Committee*.

National Center for Health Promotion and Disease Prevention (NCP): CRC QUERI is discussing partnership opportunities for screening promotion interventions with NCP. We plan to add an NCP representative to the CRC QUERI Executive Committee and have asked NCP to nominate that representative.

Office of Information: CRC QUERI is working closely with the Office of Information to create national monitoring tools for all phases of the colorectal cancer care continuum.

Non-VA Programs:

NCI: NCI has co-funded CRC QUERI during its formative period and the EC has an ongoing dialogue with NCI leadership.

Quality Cancer Care Consortium (QCCC): CRC ECs van Ryn and Kochevar have participated in the activities of the Quality Cancer Care Consortium, led by NCI.

Professional Societies: CRC QUERI ECs Bond and Provenzale, and affiliate investigator Imperiale, are leaders in national professional societies including the American College of Gastroenterology, the American Gastroenterological Association and the American Cancer Society.

I.6 CRC QUERI Goals

1) Our top priority is to improve the completion rate and reduce wait times for CDE following a positive FOBT, FS, or DCBE. Objectives include:
    a. Facilitate development of performance monitoring and feedback systems for CDE.
    b. Improve referral rates for CDE. Our recommendations for CDE performance monitoring include referral rates and referral delay. We are developing and testing an electronic notification system to facilitate referrals and are working with Advance Clinic Access groups to understand how leading facilities manage the referral and consult process between primary care and GI.
    c. Improve appointment adherence for CDE. Missed appointments are the major cause of delay of CDE in the VA. Our implementation of an interactive voice response-delivered intervention includes patient-directed reminders and educational and motivational components to improve appointment adherence.
    d. Decrease late cancellations for CDE appointments. Late cancellations produce long wait times and are related to decreased completion of CDE throughout the VA. Decreasing late cancellations is vital to increasing CDE throughput without increasing staffing. Our implementation of an interactive voice response-delivered includes a module to facilitate scheduling and reduce late cancellations.
    e. Improve patient preparation for colonoscopy. We have several projects that examine patient and provider perceptions of colonoscopy prep and needs of special populations, such as those with low health literacy. QUERI affiliate Imperiale is developing an informatics support system to facilitate the use of Phos-soda prep. While Phos-soda is preferred over PEG prep by many patients, it is currently used in only 42% of VA clinics due to concerns that patients with renal failure or electrolyte imbalance may be at risk for side effects. Our IVR-delivered intervention includes education, motivation, and support materials to help patients complete their prep.
    f. Identify and implement other promising interventions with a strong evidence base of significant effect on the identified causes.
2) Reduce variation in CRC screening rates. Objectives include:
    a. Continue our efforts to identify the organizational, provider, and patient factors that inhibit and promote guideline-adherent screening.
    b. Develop and test new strategies and adapt existing strategies for addressing such causes/barriers.

c. Improve communication and shared decision-making regarding screening.
d. Test shared decision-making tools that have been shown effective in other settings.
e. Continue to identify and implement existing interventions with a strong evidence base for improving CRC screening.

3) Improve the quality of cancer care and reduce suffering and mortality among CRC patients in VA. Objectives include:
   a. Improve the evidence base on best practices (4-5 year objective).
   b. Identify gaps between current CRC treatment, supportive and palliative care and currently established standards of practice with early emphasis on surgical care, variation in pain treatment, provider-patient/family communication, and shared decision-making.
      i. Identify determinants of such gaps.
      ii. Implement interventions with a strong evidence base for addressing such determinants.
   c. Develop and test new strategies for improving adherence to guidelines or standards of practice.
   d. In later years, apply results of VA CanCORS to determine targeted interventions to improve CRC care.

I.7 Plans for Achieving QUERI Center Goals

In addition to the specific objectives listed above, we apply a number of global strategies in working to achieve CRC QUERI goals. Seven strategies are highlighted here, along with examples of the tactics associated with each strategy.

1) Our goals and implementation pipeline are tightly tied to the CRC screening, diagnosis and treatment process. This is depicted in Figure 1. There is a logical dependence among the phases of the CRC process. CDE has been identified as a limiting performance gap and assigned the highest priority. Figure 1 shows the leading-edge implementation status of our projects focused on CDE improvement and a full pipeline to sustain future implementation efforts related to other goals. Each QUERI goal is associated with at least one “core” project, led by a QUERI Coordinator or Executive Committee member. Note that the core projects associated with screening also address CDE issues and are placed between screening and CDE in Figure 1. These projects are central to focusing QUERI implementation efforts, provide feedback to strategic planning, identify root causes of performance gaps and implement system change.

2) Partnerships with key stakeholder groups are becoming a more important strategy for CRC QUERI, as depicted in Figure 2. This figure depicts the relationship between stakeholders and key CRC QUERI projects.
3) We use an integrated, rigorous, conceptually driven approach to guide our activities. Figure 3 illustrates our overarching conceptual model and *Figure 4 depicts our implementation model (from Greenhalgh et al 2004). We are guided by an integration of social ecological perspective and a systems approach. The stakeholders with whom we work may represent providers, patients, or organizational leaders. In designing for implementation we must be cognizant of the structure and processess relevant to each type of stakeholder if we are to produce sustainable outcomes. Linkages between stakeholders and the QUERI as knowledge/change agent are critical. Spread of innovations may be spontaneous (diffussion) or active (dissemination).The impetus for change may originate with the field (pull) or the need to actively disseminate an innovation (push). The linkages between the QUERI and key stakeholder groups allow us to monitor the need for active dissemination vs diffusion, and stimulate new innovation based on stakeholder need. During the process of implementation a dialogue between stakeholders and the change agent is vital for reformulating the innovation to fit the particular context.*

Within this framework implementation is guided by an understanding of contextual factors and interactions among stakeholders. As demonstrated by the results of our CDE formative work, the underlying causes of performance gaps can differ dramatically across contexts. However, the set of core issues is typically finite and tractable. Many implementation barriers are most effectively identified and resolved through an iterative process of implementation and formative evaluation. However, implementation of interventions that proceed in advance of a basic understanding of variability of the problem, and the way key limiting factors influence the problem, ultimately slows progress and sustainable improvement. Accordingly, we continue to work to balance the need for rapid response with the development of a diagnosis plan sufficient to support sustainable implementation efforts. The recent paper contributed to the Implementation State of Art Conference by Kochevar and Yano[76] (under review for the Journal of General Internal Medicine) details many of the lessons learned through this balancing process. Example of practical tactics for implementing this approach include:

a. Conducting task analysis and global diagnoses using extensive VA data resources, key informant interviews, and networking with diverse national policy and operations partners.
b. Conducting detailed diagnosis through pilot implementation and formative evaluation, developing and testing interventions in sites that represent the types of problem variants identified through global diagnosis.
c. Examining the utility and feasibility of national roll-out of diagnosis, surveillance, and intervention approaches that demonstrate success in these "lab" sites.

4) We leverage core funds to support pilot, diagnostic, and formative studies that are either: 1) needed to inform larger grant proposals or 2) helpful in answering questions where the need for rapid response outweighs the precision gained through a heavily funded approach. Examples of tactics include:
    a. Providing salary support on the CRC QUERI core budget when the Center's (CCDOR) existing staff have the expertise needed to conduct a priority project in response to stakeholder demand. Thus, the core budget includes salary support for programmers and statisticians equal to the time needed (as one example, to analyze administrative databases for variation in CDE show and completion rates),
    b. Providing small locally initiated project grant funds to priority projects such as contracting with qualitative interviewing experts to collect data on clinic management norms and practices. These data are used to supplement analyses of administrative data and to select sites for pilot testing and survey sampling.
5) Promote the application of preliminary research findings and methods to refining the strategic and implementation plans and creative integration of data across projects. For example, early cross-study CDE findings were used to move aggressively on seeking funding to alleviate patient adherence issues. Early CRC-SAFE findings and those from our partnership with the CMO workgroup has also directed our strategic approach to CRC screening issues to include community health interventions as well as traditional health system interventions. Cross-study preliminary findings relating to health disparities are being integrated to develop new programs. We believe that it is especially important to note that advances in research <u>methodology</u> need to be translated to clinical/management products as much as research findings. For example, CanCORS findings on treatment practices are not yet available, but the CRC QUERI is moving ahead to reap the benefits of

the National CanCORS Consortium design team. We are combining CanCORS lessons learned about chart review of critical data elements with CRC-SAFE lessons learned about VA data systems to develop performance monitoring tools.

6) We work very hard to develop and maintain a national network of investigators interested in the continuum of CRC control from prevention through end of life care. Tactics include:
    a. Identifying and reaching out to existing CRC researchers,
    b. Providing technical assistance, and
    c. Attempting to foster a sense of inclusion, for example by inviting affiliated investigators to participate in a portion of our EC meetings and by the formation of special interest subcommittees.
7) In order to improve our decision-making efficiency, we have appointed a CRC QUERI Leadership Group comprised of senior members of the EC who:
    a. Have a primary appointment in the VA, and
    b. Are leaders in colorectal cancer related research and/or clinical activities (Bond, Helfand, Kochevar, Provenzale, Yano).

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Part IV. Management Plan

IV.1 Overview

CRC QUERI coordinators Dr. Kochevar, Dr. Bond, Dr. Powell, Ms. Leger, (Minneapolis), and Dr. Provenzale (Durham) jointly promote and manage relationships among clinical and research partners. We have roughly organized our activities into two arms: 1) Colorectal Cancer Screening and Follow-up and 2) Colorectal Cancer Care. Dr. Kochevar provides leadership and oversight to both arms. Drs. Kochevar and Bond are the subgroup leaders for the Colorectal Cancer Screening and Follow-up arm and Dr. Provenzale, with assistance from Dr. Fisher, is the subgroup leader for the Colorectal Cancer Care Arm. Ms. Leger (Administrative Coordinator) and Dr. Koets (our Assistant Implementation Research Coordinator) help with coordination and dissemination for both arms.

November 16, 2005

Memorandum

To: Joe Francis, MD, QUERI Director, VACO

From: Laura Kochevar, PhD., Research Coordinator, CRC QUERI

Re: Responses to the R & M Committee Comments

Below are our responses to the R & M Committee's Comments which we received earlier this year. We appreciate the Committee's time and effort in monitoring our progress and examining our approach.

The CRC QUERI Executive Committee and Coordinators thank you and the Committee for the opportunity to present our view and to clarify our rationale for our course of action. We hope that our actions will bring us closer in our combined effort to implement change in colorectal cancer outcomes and to lessen the negative impact on veterans and health care staff in our system.

R&M Summary Statement June 2005 – Action Items

A. The team should also consider the potential impact of emerging technologies, such as virtual colonoscopy, that may supplant the use of colonoscopies.

We agree. We are monitoring current research on a variety of non-invasive or less invasive screening technologies, including virtual colonoscopy, immunochemical FOBT and fecal DNA testing. The VA has formally adopted the USPSTF recommendations on colorectal cancer screening as a clinical practice guideline. These recommendations are also shared by the VA GI Field Advisory Committee and are contained in the Deputy Undersecretary for Health's information letter IL 10-2005-009. Following this lead, the CRC QUERI will not actively pursue implementation of new screening modalities until they are deemed "acceptable" by the USPSTF.

While USPSTF acceptance of any new procedure is at least five years away, pending results of studies that are currently underway, we are considering the potential impact of these technologies on our strategic plan. For the foreseeable future, no proposed method will fully supplant the use of colonoscopies, as they are necessary for diagnosis and treatment. The demand for colonoscopy may be somewhat reduced by adoption of emerging technologies, either by reduction in false positive initial screens or by the use of virtual colonoscopy as a preliminary follow-up test. In the later case, coordination of virtual and optical colonoscopy will become an issue, since abnormal findings on a virtual colonoscopy require follow-up with optical colonoscopy. While current findings on virtual colonoscopy effectiveness are mixed, those studies with positive findings have

used advanced multi-slice CT equipment. In order to assess the potential impact of virtual colonoscopy on the VA we are currently working with VA radiologists and CT vendors to assess the availability of this equipment in VA facilities.

We are also including information about emerging technologies in our "Clinical Brief" series of letters to clinicians (see Attachment B). In each Clinical Brief we discuss the current state of the evidence, ongoing research and what would be needed to implement the technology should it be found to be acceptable.

B. The Annual Report/Strategic Plan should be more transparent.
We have made the following changes to the report in response to this concern:

1. The pipeline diagram has been separated into core projects and other projects (see Figures 2 and 3). Core projects are those that are of central importance in reaching the QUERI's goals and where the principal investigator is an Executive Committee member or an Executive Committee member is a co-investigator or we have a particularly close working relationship with the principal investigator. We are noting these relationships in Appendices C & D, Project Abstracts for those projects where the principle investigator is not a CRC QUERI EC. Other projects are relevant to the QUERI mission, but not central to the strategic plan, and are conducted by Executive Committee members or QUERI affiliates with whom we have consulted.
2. We have added narrative to the project abstracts (Appendices C and D) that specifically delineates how each project advances the CRC QUERI mission, builds relationships with stakeholders and advances the scientific knowledge base concerning colorectal cancer screening, diagnosis and care or the implementation knowledge base.
3. As requested, we have added a section to our core plan on our implementation model (see section I.7.3), which complements our original conceptual model of factors influencing colorectal cancer screening, diagnosis and care. The model, taken from Greenhalgh et al (2004) stresses the importance of linkages among change agents, such as QUERI, and stakeholders.

C. The critical position of Implementation Research Coordinator should be filled as soon as possible.

Adam Powell, Ph.D. was hired as IRC on August 7, 2005. Adam is a social psychologist with an MBA in marketing. Since joining the QUERI Adam has become active in the recently launched Colorectal Cancer Care Collaborative (C4), especially concerning evaluation and dissemination issues. He has been consulting with stakeholders, including ACA and OQP, and research affiliates on needs assessment, evaluation and dissemination. Adam has taken an active role in coordinating our "Clinical Brief" letters to clinicians. He is a great asset to our team and will help us aggressively move our implementation agenda forward.

D. The Executive Committee should include a member with expertise in operational research/organizational redesign.

Michael Shwartz, Ph.D. from the VA HSR&D Center for Organization, Leadership, and Management Research (COLMR) has agreed to join our Executive Committee. Dr. Schwartz is an operations researcher with prior experience in cancer screening.

In order to maintain the size of the Executive Committee, Beth Virnig, Ph.D. of the University of Minnesota will be stepping down.

In addition to these changes, we have also dramatically stepped up our dissemination efforts, especially those directed at clinicians and operations personnel. We have instituted quarterly newsletters (see Attachment A) and "Clinical Briefs" (see Attachment B). With assistance from CIDER, we have produced three well-attended web seminars (see Attachment D). We have presented our ongoing work to OQP, the ACA steering committee, the ACA measurement committee; the ACA GI group and the QMIC (see Table 1 and Table 2).

As suggested by a reviewer, we are including a cost analysis of CRC cancer care within the VA as part of the CanCORS study (see Appendix C)

We look forward to discussing the strategic plan with you and the R&M Committee in January.

Sincerely,

Laura K. Kochevar
Research Coordinator, CRC QUERI

Director (00/151)

124-Q

Minneapolis VA Medical Center
One Veterans Drive
Minneapolis, MN 55417

1. REVIEW. The Research and Methodology (R&M) Committee reviewed the Annual Report/Strategic Plan on May 2, 2005, approved the Strategic Plan, and assigned a priority score of 20.5. Enclosed you will find the following documents:
    a. Summary Statement (Attachment A)
    b. Scoring Guide (Attachment B)
    c. Written Reviews (Attachments C - I)

2. GENERAL COMMENTS. The reviewers commend QUERI CRC for its responsive to last year's review and its shift to an implementation focus.

3. ACTION ITEMS. The Annual Report and Strategic Plan will be due November 30, 2005. Please respond to each Action Item in a letter to the Director, HSR&D (and copy to the Associate Director, QUERI), to be received on or before November 30, 2005. You do not need to address either the Plan Strengths or the Issues for Consideration in writing, unless you choose to do so.

    A. The QUERI CRC focus on screening and follow-through on colonoscopies is commended; however, the team should also consider the potential impact of emerging technologies, such as virtual colonoscopy, that may supplant the use of colonoscopies. (See Reviews 1, 3 and 4.)

    B. The Annual Report/Strategic Plan should be more transparent. The reviewers had difficulty discerning the key activities and impacts. (See Summary Statement Section 2.)

    C. QUERI CRC has been actively recruiting for a new Implementation Research Coordinator. This critical position and should be filled as soon as possible.

    D. The Strategic Plan depends heavily on redesign of work processes. The Executive Committee should include a member with expertise in operational research/organizational redesign.

4. PLAN STRENGTHS. The reviewers commend CRC QUERI for implementation focus and its partnerships with the Chief Medical Officers, the Office of Quality and Performance, and the National Cancer Institute.

Joseph Francis, MD, MPH
Associate Director, Health Services Research and Development Service QUERI Program

Enclosures: 8

cc:

Laura Kochevar, PhD, (?)
ACOS/R&D (00/151)
VISN 22
VaHq Read, 124-Q

ATTACHMENT A

Health Services Research and Development Service
QUERI Program

Research and Methodology Meeting

Annual Report and Strategic Plan Review

SUMMARY STATEMENT

May 2005

The Research and Methodology (R&M) Committee recommended approval with the priority score of 20.5. This document summarizes the major points of discussion concerning the Annual Report and Strategic Plan. Since the reviewers' individual critiques were prepared prior to discussion, some differences in conclusions and/or emphasis are to be expected.

Highlights of the R&M Committee Discussion:

1. Center Mission, Goals and Scope

   a. CRC QUERI presented a compelling rationale for identifying and focusing on the complete diagnostic evaluation as the primary critical gap. The priorities are clearly articulated and logically presented.

   b. CRC QUERI is commended for partnerships it has formed with the Chief Medical Officers, the Office of Quality and Performance, and the National Cancer Institute.

   c. Although the investigators' focus on colonoscopy is well justified, they should also consider the potential impact of emerging technologies, such as virtual colonoscopy, that may supplant the use of colonoscopies. (See Reviews 1, 2, and 3.)

   d. The significance section lacked data on the prevalence and costs of colorectal cancer in VHA. It would also be helpful to have more data on variations in CDE across facilities and how much of the gap in CDE across VHA or in individual facilities can be attributed to specific types of problems. (See Reviews 2 and 4.)

   e. CRC QUERI has made a thoughtful attempt at a model; however, further discussion is needed on this approach's effectiveness and of other

implementation/uptake strategies that might also be used. (See Reviews 2, 3, and 4.)

2. Progress and Accomplishments

   a. The Annual Report/Strategic Plan should be more transparent. The reviewers had difficulty discerning the key activities and impacts. CRC QUERI needs to present clearer documentation of completed, current and planned activities and a more focused, detailed discussion of impacts. It is difficult to see progress across the phases. (See Reviews 2, 3 and 4.)

   b. The investigators should discuss impacts and lessons learned locally in Minneapolis and Durham.

   c. The dissemination section needs to be strengthened with products other than publications.

3. Plans for Subsequent Periods

   a. It is difficult to assess the Plan for Subsequent Periods which consists of largely proposed studies without knowledge of how competitive these studies will be or without more detailed information about the studies. (See Review 4.)

   b. Economic analysis of the cost impact of screening interventions could be useful to VHA in assessing CRC screening effectiveness.

4. Management Plan

   a. The IRC position is currently vacant. This critical position needs to be filled in the very near future.

   b. The Executive Committee should include expertise in organizational behavior and operations management.

5. Data and Informatics Plans

   a. The investigators should elaborate on their work with the cancer registry, an event notification system and the informatics system to improve patient preparation for colonoscopy.

Executive Summary

Mission Statement: The Colorectal Cancer QUERI mission is to promote the translation of research discoveries and innovations into patient care and systems improvements in order to reduce the incidence, late detection, suffering, and mortality from colorectal cancers among all veterans.

In 2005 CRC QUERI focused on improving its effectiveness by:

- Rollout of quality improvement tools to 21 facilities
- Increasing stakeholder involvement in QUERI management and strategic planning
- Increasing outreach to clinicians, clinic managers and stakeholders.

The recently launched Colorectal Cancer Care Collaborative (C4) exemplifies all three strategies. C4 is a partnership among CRC QUERI the Office of Quality and Performance (OQP) and Advance Clinic Access (ACA). Membership on the C4 Advisory Committee includes representatives of Patient Care Services, Nursing Services, the Office of Information, HSR&D, and VISN Chief Medical Officers and Quality Managers. The goal of C4 is to create improvement in colorectal cancer diagnosis and care through system redesign. C4 takes quality improvement measures developed as part of the CRC-SAFE data system project and CanCORS and combines them with the expertise and networking previously established by ACA and OQP to support quality improvement teams at 21 VA facilities, one from each VISN. Site selection was conducted in cooperation with VISN Chief Medical Officers. The local teams are each composed of GI and Primary care clinical champions, an IT contact and project manager. Each team is paired with an experienced quality improvement coach trained by ACA and receiving ongoing training from the C4 partners. **C4 represents CRC QUERI partnership with a diverse group of VA stakeholders and intensive outreach to clinicians and clinic managers.**

CRC QUERI provided detailed data reports to quality improvement teams at participating facilities (see Attachment C) describing processes from positive initial screening for CRC through complete diagnostic evaluation. Later this year we will provide similar reports regarding guideline-concordant cancer care. We are working with the Office of Information to prepare for national implementation. **This expansion from the original CRC-SAFE and CanCORS development sites allows us to test tools prior to national rollout.**

Local C4 teams are using QUERI-generated reports to map their care processes and identify local improvement needs. CRC QUERI is consulting with C4 partners to design and implement quality improvement strategies. Together, C4 local teams and partners are working to refine measures and identify novel measurement strategies. **These experiences are providing CRC QUERI with new insights into what current processes exist across the VA and what kinds of improvement strategies are best fit to individual contexts.**

CRC QUERI is also providing formative and outcome evaluation for C4. Formative evaluation is helping us understand what works and improving tools prior to wider dissemination. The outcome evaluation will provide valuable information on the potential effectiveness of collaborative improvement efforts. As pointed out by Mittman (2004) "Development of this evidence base will require improved conceptions of the nature of quality problems, quality improvement processes, and the types of research needed to elucidate these processes." **The C4 evaluation is an opportunity for CRC QUERI to make a major contribution to the implementation evidence base.**

While C4 is clearly the most important initiative launched by CRC QUERI in 2005, it is not the only one. In addition we have expanded our outreach to and integration of stakeholders by:

- adding representatives from OQP, PCS and a CMO to our Executive Committee, giving stakeholders a greater say in CRC QUERI direction and providing us with an essential broader advisory perspective,
- building on our relationship with VISN CMOs and QMOs by partnering on a sequel to last year's colorectal cancer screening survey; this time examining lung cancer diagnostic processes,
- having executive committee members continuing to serve on the GPRA review steering committee and the GI Field Advisory Group, giving CRC QUERI a voice in national policy discussions,
- actively working with the VA Comprehensive Cancer Registry to improve access to these valuable data,
- presenting information about our efforts at meetings of CMOs, ACA sub committees, and the QMIC (see Table 2).

We have become much more active in forging a community of practice among researchers, clinicians and clinic staff. Achieving the mission of the CRC QUERI is beyond the reach of the coordinating centers alone, and still beyond the reach of researchers on the Executive Committee. However, there is a large pool of VA researchers already working in the area of colorectal cancer clinical improvement. Our QUERI can achieve its goals if we apply serious effort to actively recruiting and coordinating the efforts of these other investigators. Furthermore, for coordination to produce clinically-relevant products, we need to involve clinicians and clinic staff in this process. Both researchers and clinicians are independent agents; the QUERI can elicit their assistance, but not direct their actions. In the past, we dealt with these issues through consultation and informal networking, which we continue today. But as we have grown we recognized the need for more structured strategies.

- With the assistance of CIDER we have launched a popular web-based seminar series that has been attended by clinicians and staff as well as researchers.
- We have launched a clinical letter directed at primary care, GI and radiology providers. Planned topics include:
    - updates on new technologies such as virtual colonoscopy and stool DNA testing,
    - practical suggestions for improvement in clinical processes such as scheduling and optimizing patient adherence
    - reviews of clinically significant research findings, such as the use of aspirin to prevent polyp recurrence.
- We have launched a research-focused newsletter for clinicians and researchers interested in improving colorectal cancer screening diagnosis and care.
- We have continued to provide consultation to clinicians and researchers:
    - we facilitate pairing of researchers with clinicians interested in participating in test programs,
    - we encourage collaboration rather than competition among investigators with similar interests,
    - we review grant proposals and suggest strategies to improve the likelihood of funding for projects consistent with the CRC QUERI strategic plan.
- We continue to provide LIP support to projects that are vital to the strategic plan, but require pilot work to become fully fundable.

Future Plans

In addition to these improvements, we continue to move forward on our research agenda. Our research priorities remain the same as in 2004: testing methods to reduce performance gaps in complete diagnostic evaluation for veterans with positive screening tests; assessing quality of care for veterans with colorectal cancer; and ongoing assessment of factors that influence screening, diagnosis and care.

We believe that we have had an extremely productive 2005. We have also initiated strategies and developed partnerships that leave us better positioned for an even more productive 2006.

References

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Contribution to Implementation Science

In the past year the CRC QUERI has made contributions to understanding implementation through 1) promoting an evidence-based, participatory approach to implementation and 2) advancing our conceptualization of implementing colorectal cancer screening.

An evidence-based, participatory approach. The C4 local teams made a contractual agreement when joining the collaborative. They agreed to attend required meetings and participate in C4 activities. The VISN CMO and facility COS endorsed the contract, agreeing that teams would have the resources necessary to participate. This type of organizational support is critical for implementation success (Stone et al, 2002). The participatory model (Whyte et al, 1998), where participants and investigators collaborate in shaping the implementation throughout the process, is also critical to C4 success.

Although preliminary, feedback from the teams and results of data extractions are providing important insights:

- Across the board, rates of referral for follow-up of positive FOBT (56% median) are worse than rates of non-completion of first colonoscopy appointments (70% median) although significant room for improvement is still indicated.
    - Implementation efforts should focus on improving prompt referral for FOBT.
- Some sites (N=9), do experience equal or greater gaps in colonoscopy completion.
    - Tools for improving colonoscopy completion are also needed in many, but not all sites.
- The median rate for completion of a VA colonoscopy within one year of a positive FOBT is 32% (range of 5% to 52%). The median time to completion of a VA colonoscopy within one year of a positive FOBT is 115 days (range = 62 to 185).
    - Delay in complete diagnostic evaluation is a problem for most sites.
    - The national data extracts do not account for private sector colonoscopies.
    - Several C4 sites have conducted chart reviews and have found few private-sector colonoscopies, however other sites may find more. We are rapidly receiving more feedback from teams. We need a mechanism for reliably charting and extracting private sector procedures.
    - Several C4 sites have conducted chart reviews and have found that a large component of their gap in colonoscopic follow-up is due to inappropriate use of FOBT. Examples include: FOBT used to monitor anticoagulation, FOBT used on

patients too sick to screen, FOBT used with patients who have had recent colonoscopies.

- Elimination of unnecessary FOBT will increase apparent follow-up rates, but decrease the EPRP CRC screening performance measure. OQP has offered an appeal process to assure facilities that they will not be penalized for decreasing unnecessary FOBT.

In addition to helping us better target implementation efforts at C4 sites, these findings suggest that C4 may have an impact on the QUERI prioritization for the VA as a whole. For example, emphasizing referral patterns over endoscopic throughput or shifting to a more aggressive approach to screening issues.

Conceptualization of screening implementation. Although screening promotion is the third of our QUERI goals, it presents unique conceptual challenges which must be addressed to prepare for action. Colorectal cancer screening is unique in that five screening modalities are considered acceptable: Fecal Occult Blood Test (FOBT), Flexible Sigmoidoscopy (FS), FS plus FOBT, Double Contrast Barium Enema (DCBE) and Colonoscopy (CS). Currently, there is insufficient evidence to indicate that any of these modalities is superior to the others. However, the modalities do differ from one another in several important ways, including:

- Cost and resource utilization (although not cost-effectiveness)
- Potential for physical risk and/or discomfort
- Patient preferences
- Provider perceptions of efficacy and safety
- Systems needed for implementation

In addition, new modalities are entering the marketplace without a sufficient evidence base (e.g. virtual colonoscopy). While there is clarity on the clinical finding that CRC Screening reduces CRC incidence and mortality, the issues raised by equivocation and choice complicate the implementation task. Specifically, what should be implemented?

Teutsch and Berger (2005) suggest a distinction between Evidence Review and Synthesis (ERS) and Evidence-based Decision Making (EDM). In the Teutsch and Berger model (see Figure 1, below) the type of information and the evidentiary standards for ERS and EDM differ. Effectiveness and cost effectiveness studies, held to a high standard of scientific rigor, are synthesized to determine which clinical procedures or treatments can be considered evidence-based. But the implementation of specific procedures or practices is a more complex psycho-social process requiring evidence of stakeholder preferences, system constraints including

economic and organizational values, etc.

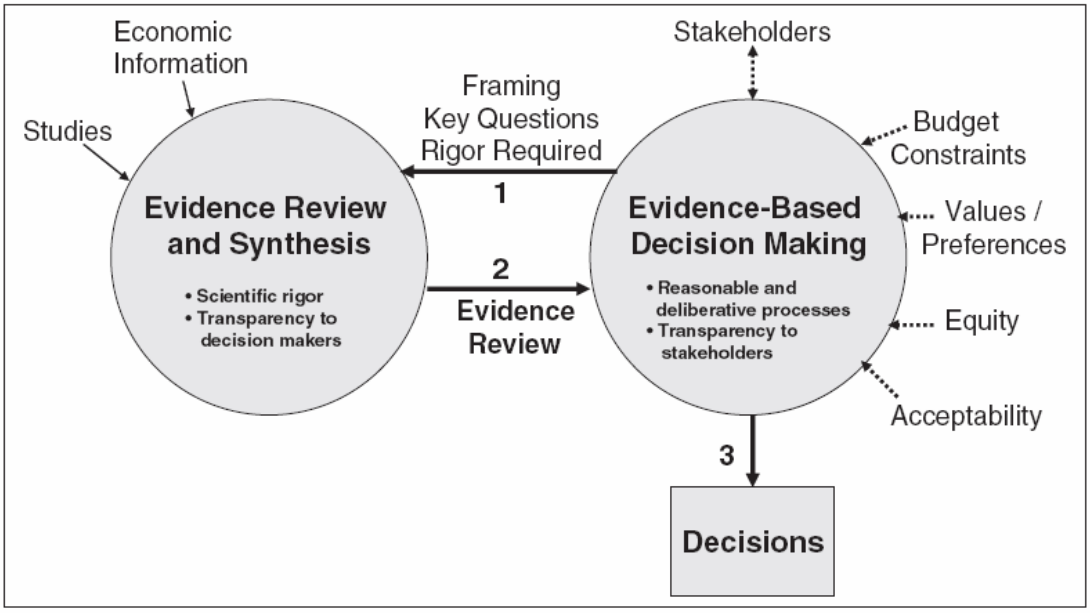

Figure 1 Dynamic relationship between evidence review and synthesis and evidence-based decision making.

The extension to CRC screening is clear: five modalities are evidence-based, but implementation/promotion of specific modalities in specific settings is dependent on multiple psycho-social factors.

However, we strongly differ with Teutsch and Berger on a critical point. While they suggest the development a structured "reasonable" deliberative process involving shared deliberation with stakeholders and an appeals process to support EDM, we believe empirical evidence on stakeholder preferences, system constraints, etc. be brought to bear. We believe that the QUERI's role in VA EDM is two-fold: 1) to collect empirical data and synthesize existing data to support EDM within the organization and 2) to develop and test implementation tools that can simplify the EDM task by reducing conflicting influences. Note that it is beyond the scope of the QUERI to recommend specific policy to the organization when decisions involve factors beyond the evidence, such as ethics or organizational values.

For example, the organizational value for equity is reflected in the Deputy Undersecretary for Health's IL 10-2005-009. The letter asks that all five screening modalities be made available in all VA facilities and providers present the pros and cons for all modalities and for not screening to every patient. The evidence shows that not all facilities have the capacity to offer all modalities (CRC QUERI studies: CMO survey, GI FAC survey, Screening Colonoscopy), providers differ in their support for modalities (GI FAC survey, Screening Colonoscopy), patients differ in their desire for choice (SCREEN focus groups) and perhaps most importantly, choice

can reduce the probability that persons will act (Iyengar and Lepper, 2000). Furthermore, to address the conflict between ethical support of choice and real constraints of the clinical encounter, decision aids are being tested (Decision tool). This tool can be used by patients prior to the clinical encounter to reduce the number of choices discussed with the provider. It is beyond the scope of the QUERI to recommend how capacity disparities be addressed or how the organization may choose to mandate choices that providers do not support. As the CRC QUERI prepares to act on screening issues we are actively assessing how to further support VA EDM.

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ANNUAL UPDATE

Part II. Progress and Accomplishments During Previous Year

II.1 Overview

The Colorectal Cancer QUERI Center has made substantial progress in advancing its mission during the previous year. The Center's primary impacts and contributions are listed in Table 1, and highlights are briefly described in the accompanying text.

II.2 Impacts, Contributions, and Products

We have advanced our mission in several ways:

- We are engaged in an active partnership with OQP and ACA, supported by an advisory group of diverse VA stakeholders, to improve diagnosis and treatment of colorectal cancer as part of the Colorectal Cancer Care Collaborative (C4) project. This project works with teams from all 21 VISNs to:
  - Reduce delay and improve reliability of complete diagnostic evaluation following positive colorectal cancer screening
  - Reduce delay and improve reliability of complete diagnostic evaluation following symptom presentation
  - Reduce delay of treatment initiation following diagnosis
  - Assure guideline-concordant treatment.
- We produced detailed process data reports (see Attachment C) for the 21 facilities in C4.
- We are making a substantial contribution to VA clinical and managerial policy through our contributions to committees and councils associated with CRC. In particular, EC Provenzale has advised the GPRP steering committee, influencing the methods used in the external review of VA cancer care. ECs Provenzale and Bond and Patel are members of the GI Field Advisory Group, giving the QUERI a voice in national VA GI policy.
- We have greatly expanded our outreach to VA clinicians and clinic staff through our "Affiliate Forum" newsletter (see Attachment A), "Clinical Brief" letter (see Attachment B), and research seminars (see Attachment D). The latter have actually received greater attendance from policy makers, clinicians and staff than researchers.

- We continue to influence the direction of VA research in colorectal cancer through close collaboration and consultation with a broad range of VA researchers. We feel that by influencing potential competitors to collaborate and by consulting on grantsmanship we can help make the VA HSR&D process more efficient.
- We also have continued our active consulting relationships with clinical quality improvement agents within the VA, including Advance Clinic Access workgroups, VISN CMO's, and local endoscopy and GI clinical leaders. For example, we have engaged with the ACA measurement workgroup and the ACA GI workgroup to refine measures that will be useful for CRC quality improvement. We have follow-up up our successful CRC screening survey project for the VISN CMOs by conducting a similar survey of lung cancer diagnostic processes.

II.3 Dissemination: Publications and Presentations

Table 2 documents QUERI Center dissemination activity (during primarily the previous calendar year) to external policy, practice and research audiences and to internal (VHA) audiences. CRC QUERI researchers and clinicians produced 33 scholarly publications and 26 presentations. Our publications and other dissemination articles target scholarly and scientific audiences, applied and practitioner audiences, and national policy makers.

Dr. Bond continues to be tireless in his efforts to educate and motivate providers to conduct guideline-adherent screening. Drs. Bond and Provenzale are integral to our clinician outreach through our "Clinical Brief" letters. CRC QUERI investigators made a significant contribution to the sum total of knowledge on appropriate clinical treatment, variations in best practices associated with CRC, and factors contributing to variations. In addition, we have made a significant contribution in advancing the knowledge, conceptual, and methodologic base for studying and addressing race/ethnicity disparities in care and outcomes For example (see Appendix B for abstracts):

- Dr. Bond's publications include reviews of current evidence and recommendations for best clinical practice.
- Dr. Bond's participation in the VA cooperative study 380 on colorectal cancer screening resulted in a publication showing that 6-sample take home FOBT is significantly more sensitive than single-sample digital rectal exam FOBT.
- Drs. Dominitz and Imperiale have published papers on emerging screening technologies such as virtual colonoscopy and DNA stool testing.
- Drs. Dominitz, Ferreira, Fisher, Provenzale and van Ryn have numerous publications addressing the underlying causes of race/ethnicity disparities.
- Dr. Ferreira (in partnership with Drs. Provenzale and Bennett) has been active in exploring interventions to reduce disparities in colorectal cancer screening. Dr. Ferreira is also a co investigator on the CanCORS study and is working with Dr. Provenzale to examine disparities issues in cancer care.
- Dr. Provenzale has extensively published on the effects of cancer care practices on patient outcomes, including health-related quality of life.
- Drs. Kochevar and Yano have published on the role of needs assessment in implementation research and lessons learned from CRC QUERI projects.

- Dr. Yano has published on organizational factors influencing CRC screening.

II.4 Active and Completed Projects

Table 3 lists our current and recently completed projects. These projects are also depicted in our pipeline diagrams (Figures 2 and 3). As indicated in Table 3, the projects span the entire QUERI six-step process.

We have learned a tremendous amount from our active and completed projects:

Complete Diagnostic Evaluation Improvement

C4

Findings from the new C4 collaborative are confirming previous findings, pointing to factors that must be primary targets for intervention: communication of lab results and the need for prompt referral are dominant themes. Appointment adherence is a lesser, but still significant barrier to CDE for many VAs. We have confirmed that the relative contribution of provider referral vs. patient adherence for colonoscopy varies by facility, and tailored interventions will be needed. The C4 teams provide and excellent proving ground for such tailored interventions.

C4 findings also suggest that the apparently high screening rate among VA facilities may need to be adjusted downward, if inappropriate screening tests are discounted. In question is the testing of individuals who are too ill to undergo follow-up, and individuals who have a limited life expectancy. We are actively working with OQP on performance measurement issues so that facilities are not penalized for eliminating unnecessary screening. We are awaiting more findings from C4 to see if the QUERI priorities need to be adjusted to include greater emphasis on screening promotion.

GIVER

The evidence base for interventions to improve complete diagnostic evaluation following positive screening is not well developed. While evidence regarding referral facilitation and appointment adherence can be drawn from multiple clinical settings (e.g. diabetes care, HIV screening and treatment) the unique demands of colonoscopy prep limit the generalizability of these studies to CRCS and CDE. Since low CDE rates and CDE delay are such pressing clinical problems with only a moderate intervention evidence base, we have adopted a methodology that combines randomized intervention

trial methods with implementation research methods. This strategy dramatically cuts the product development cycle time lost to sequencing studies and omits (at least) one grant review cycle. The recently funded Gastroenterology Interactive Voice Education and Reminder (GIVER, formerly known as "Telehealth") study uses this methodology.

GIVER uses interactive voice response to provide education, motivation, scheduling facilitation and appointment reminders to help patients successfully adhere to CDE requirements. A GI advisory panel recruited from a variety of sites oversees GIVER development and implementation to facilitate multi-site roll out. The GIVER study is currently in start up, but will soon be producing evidence of the types of reminders and verbal messages that may help veterans successfully prep for and complete colonoscopies.

Coloprep

The coloprep project develops, tests, and implements an informatics system to facilitate the use of oral Phos-soda colonoscopy prep. Phos-soda is associated with greater patient acceptance, adherence and superior prep results but is only used in 42% of VA facilities. Providers in facilities that do not use Phos-soda cite the difficulty of identifying patients at risk for side effects due to renal failure and/or electrolyte imbalance. The coloprep system will search the electronic medical record and warn the provider if the patient is at risk.

Endoscopy Non-completion risk

Endoscopy non-completion risk is a study of administrative data that seeks to identify risk factors for patient non-completion of endoscopy appointments. The study is in the final stages of analysis and is expected to be completed by the end of the calendar year.

ENS

Our Event Notification System (ENS) project suffered severe setbacks this year due to personnel changes, test site changes and IRB issues. The ENS project tests a CPRS template that facilitates referral for complete diagnostic evaluation following positive FOBT by alerting both primary care and GI to the lab result. Despite the setbacks this year the project is producing promising preliminary findings: 90 day referral rates prior to system deployment at the Portland site were 61.5% and 91.2% in the first

90 days since system deployment. The coordinating center is working closely with the new study team to assure successful completion of this project.

Key Informant

The Key Informant interview study is gathering data on endoscopic capacity and clinical practices at 32 VA facilities. We are currently interviewing participants, including GI chiefs of staff, GI and primary care providers and GI clinic managers.

Assessing Quality of Care for Veterans with Cancer

CanCORS

VA CanCORS and its ancillary studies will add to the evidence base on truly effective CRC treatment practices, describe deviations from standards of care and their underlying causes and suggest potential intervention strategies. CanCORS methodology is already being adapted for performance monitoring.

In the first 24 months of this study, we have successfully implemented patient baseline and follow-up surveys, provider surveys (for 5 specialty types), and have begun medical records abstraction. Enrollment is scheduled to be completed on December 30, 2005. As of November 7, 2005, approximately 2,094 eligible patients have been identified for the study, nearly 915 have enrolled, 750 have completed baseline interviews, and 255 have completed follow-up interviews.

Cancer Registry

The Cancer Registry project is designed to cross validate the VA CCR with the VISN 20 CHIPS data warehouse and through chart abstraction. The project has encountered access issues with the VA Comprehensive Cancer Registry. To date the registry has transmitted data to the investigators for cases that the investigators have identified but has not shared information for cases in the registry that the investigator has not found on his own. We continue to work with the registry personnel and Neil Thakur, Ph.D. of HSR&D to resolve these access issues.

Assessment of Factors That Influence Screening, Diagnosis and Care

SCREEN

Preliminary findings from the Veteran Survey (SCREEN) focus groups will have profound implications for implementation and screening promotion if they are confirmed

by the full study. Potentially the most important findings are differences in the way men and women emotionally respond to colorectal cancer screening, the way they view information on screening and the way both men and women view the choices involved. Women veterans reported psychosocial anxiety related to emotional exposure, while men reported anxiety related to risk of physical pain. Women reported that additional information helped relieve anxiety while men reported an increase in anxiety in response to information.

CRC-SAFE

The CRC Screening and Follow-up Event data system (CRC SAFE) is designed as a prototype data system for monitoring CRC screening and follow-up. The project has been successfully completed and publications are being prepared. The major outcomes have been the measurement tools which are being disseminated through the C4 program. We are working with the Office of Information to develop a plan to integrate CRC SAFE/C4 findings into routine national data extractions.

Screening Colonoscopy Barriers

The Screening Colonoscopy Barriers study is in its final stages of analysis and should be completed by the end of the calendar year. While most providers support offering a choice of screening modalities (as recommended by the USPSTF and endorsed by the VA), they all agree that there are insufficient resources to offer screening colonoscopy on a routine basis. Providers differ in their perception of the sufficiency of the evidence base for screening colonoscopy and whether screening colonoscopy should be a preferred screening modality. Furthermore, we have found that primary care and GI providers have conflicting expectations over who is responsible for patient education and identifying appropriate patients for screening. These conflicting expectations present a significant barrier to effective screening.

CRC Decision Tool

The CRC Decision Tool study tests a computerized decision aid to help patients select a CRC screening modality. The study began in March, 2005. There are no preliminary findings to date.

Part III. Plans for Subsequent Periods

III.1 Overview

Table 4 provides an overview of our plans, organized by the CRC QUERI goal(s) it serves. This year, we have far fewer planned projects than in the past. This is a sign of our development as a QUERI. We are aware that we cannot be effective if we exceed our functional capacity and can now only add new projects as human resources (investigators) become available.

III.2 Planned Projects

In order to achieve our first goal, to ***improve the referral, show, and completion rate for CDE following a positive screening test***, we have proposed one project to assess the resources needed to support efficient CDE, given other GI needs. We are currently recruiting investigators interested in modeling throughput of endoscopy clinics under resource constraints.

We plan three projects intended to work toward our second goal, to ***reduce variation and improve CRC screening rates.*** Dr. Vernon is leading an effort to understand special needs of Vietnam-era veterans and affiliate Dr. Bennett is testing an intervention to promote CRC screening in CBOCs. Both of these populations have been overlooked in the CRC screening literature. Dr. Powell is a co investigator on Dr. Bennett's project and is managing the evaluation component of the project. Dr. Inadomi is revising his IIR proposal to assess the impact of patient adherence on CRC screening modality effectiveness. Dr. Kochevar is a co investigator on Dr. Inadomi's project.

We are not adding additional projects toward our third goal, ***improve the quality of cancer care and reduce suffering and mortality among CRC patients in VA.*** A number of existing projects build on the CanCORS dataset in assessing factors contributing to variation in care and outcomes, and we feel these are sufficient for now.

Part IV. Changes to Management Plan

IV. 1 Overview

Please see core plan.

IV.2 Staff and Executive Committee

Adam Powell, MBA, PhD joined the QUERI in August, 2005 as Implementation Research Coordinator. Dr. Powell is a social psychologist with a background in marketing. He has become active in consulting with CRC QUERI affiliates, working with the evaluation and dissemination planning for the C4 collaborative and working with Drs. Bond and Provenzale on the "Clinical Brief" letters to clinicians.

Mark Enderle, MD, CMO for VISN 6 and Lynnette Nilan of OQP have joined the QUERI Executive Committee. Nancy Baxter and Ron Meyers have stepped down from the EC. Michael Shwartz, PhD, of the VA HSR&D Center for Organization, Leadership and Management Research has agreed to join the EC. Dr. Shwartz is an operations researcher with experience in cancer care research. To maintain the size of the EC, Beth Virnig of the University of Minnesota will be stepping down.

Minneapolis Research Coordinating Center

Laura K. Kochevar, PhD serves as the Research Coordinator for the QUERI-CRC, providing direction and day-to-day oversight for all QUERI activities. She spends 50% of her time on CRC QUERI core matters, and has additional funding as principal and co-investigator of CRC QUERI research projects. Dr. Kochevar invests considerable effort in core-funded rapid-response work with stakeholders such as the advanced clinic access groups, OQP, PCS, the GI field advisory committee and the CMO/QMO workgroup and actively works to collect and synthesize incoming preliminary research findings for rapid conversion to clinical and management tools.

Adam Powell, PhD, MBA, the Implementation Research Coordinator, is funded 100% by the CRC QUERI to execute its strategic plan and priorities by leading in the design, implementation, evaluation and dissemination of findings of CRC research projects. He serves as a liaison and resource to affiliated investigators and provides training to partnering clinical staff on implementation strategies. He will also foster broader VA implementation efforts through collaboration and coordination with IRCs and investigators from other QUERIs on cross-cutting projects and dissemination activities to advance the field of implementation science.

Suzanne Leger is the QUERI Administrative Coordinator. She is responsible for assisting with day-to-day operations, staff supervision, and dissemination and technical assistance activities. She assists in the coordination of research-affiliate activities and maintenance of the CRC QUERI web site. She is our liaison to VACO on QUERI reporting and policy.

Nancy Koets, PsyD serves as Implementation Associate. She will make a substantive contribution to patient-centered translations projects intended to promote best CDE practices as well as coordinate and assist with other implementation projects. Dr. Koets serves as project coordinator and co-investigator for all coordinating center locally-funded projects.

CCDOR Statistics Group led by David B. Nelson, Ph.D. will provide statistical support for pilot and diagnosis projects supported by the QUERI core and rapid-response field work.

CCDOR Data Group The CCDOR data group includes four experienced Systems Analysts with in depth knowledge of the VA administrative data systems, and extensive experience working with Medicare and other complex databases. They will provide both data and web page support for dissemination, pilot, diagnostic and rapid-response projects supported by the QUERI core.

General Supplies. We request funds to purchase general office supplies (such as letterhead, notebooks, pens, pencils, paper, etc) and word-processing supplies (disks, printer cartridges, etc). These costs also incorporate historical costs associated with: SAS statistical license upgrades, maintenance and renewals; SAS/SPSS software licensing, maintenance and upgrades; statistical software upgrades and maintenance for address manipulation, plotting, formatting, enhanced data analysis, and sample size manipulation. Additionally we request funds for postage and federal express and the acquisition of various educational materials required during the year. Cost is based on a formula from past experience.

Funds for LIPs and Rapid-Response Projects. In addition to core staff time we occasionally need to contract with external vendors to satisfy stakeholder requests for information and technical assistance.

Minneapolis Clinical Coordinating Center

John Bond, M.D. is the Clinical Coordinator for CRC Screening and Diagnostic Follow-up and will provide direction and day-to-day management of the QUERI-CRC Clinical Coordinating Center. Dr. Bond will provide .20 FTE during each year, contributed by the Minneapolis VAMC and VISN 23.

Durham Clinical Coordinating Center

Dawn Provenzale, M.D. is the Clinical Coordinator for CRC Treatment and will provide direction and day-to-day management of the QUERI-CRC Co-Clinical Coordinating Center in Durham. Dr. Provenzale will provide .20 FTE during each year.

Deborah Fisher, M.D. will assist Dr Provenzale with conducting and coordinating CRC QUERI Cancer Care Quality Improvement projects, will provide input into the CRC QUERI Leadership and Executive committees. Dr Fisher will provide .10 FTE each year.

Teresa Day (.75 FTE) has been hired to support the day-to-day operations of the Durham coordinating center.

Table 5. Staff, Executive Committee and Affiliates Roster

Center Leadership								
Name	**Degrees**	**QUERI Role**	**Institution/Facility**	**Street Address**	**City, State, Zip**	**Telephone**	**Fax**	**E-mail**
Kochevar, Laura	PhD	Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-5355	612-727-5699	Laura.Kochevar@va.gov
Bond, John	MD	Co-Clinical Coordinator	Minneapolis VAMC (111D)	One Veterans Drive	Minneapolis, MN 55417	612-467-4100	612-725-2248	John.Bond@va.gov
Provenzale, Dawn	MD, MSc	Co-Clinical Coordinator	Durham VAMC (152)	508 Fulton Street Building 16, Room 70	Durham, NC 27705	919-286-2287	919-416-5839	prove002@mc.duke.edu
Powell, Adam	PhD, MBA	Implementation Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis MN 55417	612-467-4364	612-727-5699	Adam.Powell@va.gov
Koets, Nancy	PsyD	Associate Implementation Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis MN 55417	612-467-1148	612-727-5699	Nancy.Koets@va.gov
Leger, Suzanne	MPA	Administrative Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-2785	612-727-5699	Suzanne.Leger2@va.gov
Executive Committee Membership								
Name	**Degrees**	**QUERI Role**	**Institution/Facility**	**Address**	**City, State, Zip**	**Telephone**	**Fax**	**E-mail**
Dominitz, Jason A.	MD, MHS	Executive Committee	VA Puget Sound Health Care System, Seattle Division (111GI)	1660 S. Columbian Way	Seattle, WA 98108-1597	206-764-2285	206-764-2232	Jason.Dominitz@va.gov

Enderle, Mark A.	MD	Executive Committee	VISN 16 Chief Medical Officer	1600 E. Woodrow Wilson Dr., 3rd Fl, Suite A	Jackson, MS 39216	601-364-7906	601-364-7996	Mark.Enderle@va.gov
Helfand, Mark	MD	Executive Committee	Section of General Internal Medicine (P3-MED)	3710 SW US Vets. Hosp. Road	Portland, OR 97207	503-494-4277	503-494-4551	helfand@ohsu.edu
Nilan, Lynnette	PhD, MN	Executive Committee	Office of Quality & Performance, 10Q, Rm. 875C	810 Vermont Ave. NW.	Washington, DC 20420	202-273-8919	202-273-9097	Lynnette,Nilan@va.gov
Parkerton, Patricia	PhD	Executive Committee	Department of Health Services, UCLA School of Public Health	650 Charles Young Drive South, Room 41-295D, Box 951772	Los Angeles, CA 90095	310-825-2926	310-825-3317	parkert@ucla.edu
Partin, Melissa	PhD	Executive Committee	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-3841	612-727-5699	Melissa.Partin@va.gov
Patel, Thakor	MD, MACP	Executive Committee	Dept. of Veterans Affairs Medical Services (111A)	810 Vermont Ave. NW.	Washington, DC. 20420	202-273-8490	202-283-9142	tgpatel@2k.va.gov
Shannon, Jackilen	PhD	Executive Committee	Portland VA Research Foundation	3710 SW US Veterans Hospital Road	Portland, OR 97201	503-220-8262 x57285	503-273-5367	shannoja@ohsu.edu
van Ryn, Michelle	PhD, MPH	Executive Committee	U. of Minn. Dept. of Family Medicine & Comm. Health	925 Delaware St. SE. #220	Minneapolis, MN. 55414	612-625-9105	612-624-3037	vanry001@umn.edu
Vernon, Sally	PhD	Executive Committee	School of Public Health, University of Texas-Houston, Health Science Center	Box 20036	Houston, TX 77225	713-500-9760	713-500-9750	svernon@sph.uth.tmc.edu
Virnig, Beth	PhD, MPH	Executive Committee	University of Minnesota Box 729 Mayo	420 Delaware Street SE	Minneapolis, MN 55455	612-624-4426	612-624-8448	virni001@tc.umc.edu
Yano, Elizabeth M.	PhD, MSPH	Executive Committee	Center for the Study of Healthcare Provider Behavior, VA Greater Los Angeles Health Care System.	16111 Plummer Street	Sepulveda, CA 91343-2036	818-895-9449	818-895-5838	Elizabeth.Yano@va.gov

Other Key Center and Project Staff								
Name	**Degrees**	**QUERI Role**	**Institution/Facility**	**Address**	**City, State, Zip**	**Telephone**	**Fax**	**E-mail**
Ash, Joan S.	PhD	Affiliate Investigator	Department of Medical Informatics and Clinical Epidemiology, Oregon Health and Science University	3181 SW Sam Jackson Park Road	Portland, OR 97239-3098	503-494-4540	503-494-4551	ash@ohsu.edu
Burgess, Diana	PhD	Affiliate Investigator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4673	612-727-5699	Diana.burgess@va.gov
El-Serag, Hashem	MD, MPH	Affiliate Investigator	Houston Veterans Affairs Medical Center (39A)	2002 Holcombe Blvd.	Houston, TX 77030	713-794-8840		Hashem.El-Serag@.va.gov
Etzioni, David	MD	Affiliate Investigator	University of California Los Angeles (UCLA)	911 Broxton Ave, 3rd Floor	Los Angeles, CA 90024	310-794-2257	310-794-3288	detzioni@metnet.ucla.edu
Ferreira, M. Rosario	MD, MAPP	Affiliate Investigator	Feinberg School of Medicine Northwestern University	676 N. St. Clair Street Suite 1400	Chicago, IL 60611	312-695-4497	312-695-3999	mr-ferraira@northwestern.edu
Fisher, Deborah	MD, MHS	Affiliate Investigator	Durham VAMC (152)	508 Fulton Street, Bldg 16	Durham, NC 27705	919-286-6936	919-416-5836	fish034@mc.duke.edu
Friedmann-Sánchez, Greta	PhD	Implementation Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4376	612-727-5699	Greta.Friedemann-Sanchez@va.gov
Gralnek, Ian	MD, MSHS	Affiliate Investigator	UCLA Center for the Study of Digestive Health Care Quality and Outcomes	11301 Wilshire Blvd	Los Angeles, CA 90073	310-268-3256	310-794-2908	igralnek@mednet.ucla.edu
Griffin, Joan	PhD	Affiliate Investigator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4232	612-725-2118	Joan.griffin2@va.gov

Hannum Rose, Julia	PhD	Affiliate Investigator	Case Western Reserve University School of Medicine	2500 MetroHealth Drive	Cleveland, Ohio 44109	216-778-2303	216-778-5935	Julia.Rose@va.gov
Harris, Linda	PhD	Affiliate Investigator	Health Communication and Informatics Research Branch, Behavioral Research Program Division of Cancer Control and Population Sciences National Cancer Institute	6130 Executive Boulevard EPN-4087A, MSC 7326	Bethesda, Maryland 20892-7326	301-496-7984	301-480-2198	harrisl@mail.nih.gov
Hoffman, Richard	PhD	Associate Professor	UMD Behavioral Science 241SMed	1035 University Drive	Duluth, MN 55812	218-726-7144	218-726-8874	rhoffman@umn.edu
Imperiale, Thomas F.	MD	Affiliate Investigator	Roudebush VA Medical Center Health Services Research and Development (11H)	1481 West 10th Street	Indianapolis, IN 46202	317-554-0000 x2887	317-554-0114	imperial@hsrd.va.iupui.edu
Inadomi, John M.	MD	Affiliate Investigator	VA Ann Arbor Healthcare Systems (111-D)	2215 Fuller Road	Ann Arbor, MI 48105	734-761-7981	734-761-7549	jinadomi@umich.edu
Lambert, Michael			Greater Los Angeles Health Care System		Los Angeles, CA 90073	310-268-3564		michael.lambert@va.gov
Lazovich, DeAnn	PhD	Affilate Investigators	Div of Epidemiology, University of Minnesota	Suite 300, 1300 S 2nd St	Minneapolis, MN 55454	612-624-1818	612-624-0315	lazovich@epi.umn.edu
Ling, Bruce	MD, MPH	Affiliate Investigator	VA Pittsburgh Center for Health Equity Research and Promotion	230 McKee Place Suite 600	Pittsburgh, PA 15213	412-688-6000		lingbs@upmc.edu
Morrison, Vicki	MD	Affiliate Investigator	Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4135		morri002@umn.edu
Myers, Jennifer								Jlm17@iupui.edu
Nelson, Douglas	MD	Affiliate Investigator	Minneapolis VAMC (111D)	One Veterans Drive	Minneapolis, MN	612-467-4100	612-725-2248	nelso195@tc.umn.edu

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Osarogiagbon, Raymond	MD	Affiliate Investigator	Amarillo VA Health Care System (504/111)	6010 Amarillo Blvd West	Amarillo, TX 79106	806-356-3809	806-356-3795	raymond.osarogiabon@med.va.gov
Patten, Sonia	PhD	Affiliate Investigator	Macalester College	1600 Grand Avenue	Saint Paul, MN 55105	651-696-6588	651-696-6116	patten@macalester.edu
Pignone, Michael	MD, MPH	Affiliate Investigator	University of North Carolina at Chapel Hill	5039 Old Clinic Bldg	Chapel Hill, NC 27599	919-966-2276		Michael_pignone@med.unc.edu
Rockwood, Todd	PhD	Affiliate Investigator	Division of Health Services Research, Policy & Administration University of Minnesota	420 Delaware St SE Mayo Mail Stop 729	Minneapolis, MN 55455	612-625-3993	612-624-2196	rockw001@tc.umn.edu
Rudolph, Rebecca								rebecca.rudolph@va.gov
Sayer, Nina	PhD	Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4623	612-727-5699	Nina.sayer@med.va.gov
Soban, Lynn	RN, MPH	Affiliate Investigator	VA HSR&D COE for the Study of Healthcare Provider Behavior	16111 Plummer Street (152) Building 25	Sepulveda, CA 91343	818-891-7711 x9954	818-895-5838	lynn.soban@med.va.gov
Wallace, James		Project Staff	Portland VAMC	3710 SW US Veterans Hospital Rd, PO Box 1034	Portland, OR 97207	503-220-8262 x54794	503-494-4551	wallacej@ohsu.edu
Walter, Louise	MD	Affiliate Investigator	VA Medical Center – 181G	4150 Clement St.	San Francisco, CA. 94121	415-221-4810 X3052	415-750-6641	Louise.Walter@med.va.gov

Appendix A. Acronym Lists

A.1 General Acronyms

Acronym	Full Name	Context
AC	Administrative Coordinator for a QUERI Center	QUERI
ACA	Advance Clinic Access	VA
AGS	American Geriatrics Society	Private
AHRQ	Agency for Healthcare Research & Quality	Federal
AI	Associate Investigator Program	ORD
AMA	American Medical Association	Private
AO	Administrative Officer	ORD
ART	Annual Reporting Template	VA
Campbell	Campbell Collaboration	Private
CBOC	Community Based Outpatient Clinic	VA
CC	Clinical Coordinator for a QUERI Center	QUERI
CDA	Career Development Award	ORD
CDC	Centers for Disease Control and Prevention	Federal
CHF	Chronic Heart Failure QUERI Center	QUERI
CIO	Chief Information Officer	VA
CME	Continuing Medical Education	Generic
CMO	Chief Medical Officer	VISN
CMS	Centers for Medicare and Medicaid	Federal
CO	Central Office	VA
Cochrane	Cochrane Collaboration	Private
COE	Center of Excellence	HSRD
COLA	Cost of Living Allowance	Generic
COLMR	Center for Organization Leadership and Management Research	VA
CP	Concept Paper	VA
CPG Council	VA/DoD National Clinical Practice Guidelines Council (NCPGC)	VA
CPRS	Computerized Patient Record System	VA
CRADO	Chief Research and Development Officer	ORD
CRC	Colorectal Cancer QUERI Center	QUERI
CSP	Cooperative Studies Program	ORD
DHCP	Decentralized Hospital Computer Program	VA
DHHS	Department of Health and Human Services	Federal
DIWG	Data Issues Work Group	QUERI
DM	Diabetes Mellitus QUERI Center	QUERI
DoD	Department of Defense	Federal
DUSHOM	Deputy Undersecretary for Health Promotion and Disease Prevention	VA
EES	Employee Education System	VA
EBM	Evidence Based Medicine	Generic
EDM	Evidence-based Decision Making	Generic
EPC	Evidence-based Practice Center	AHRQ

Acronym	Full Name	Context
EPOC	Effective Practice and Organization of Care Cochrane Group	Private
EPRP	External Peer Review Program	VA
ERIC	Epidemiology Research and Information Center	HSRD
ERS	Evidence Review and Synthesis	Generic
FTE	Full time employee	Generic
GRECC	Geriatric Research Education and Clinical Center	VA
HAIG	Health Analysis and Information Group	VA
HERC	Health Economics Resource Center	HSRD
HIPAA	Health Insurance Portability and Accountability Act	Generic
HIV	HIV/AIDS QUERI Center	QUERI
HSR&D	Health Services Research and Development Service	HSRD
I&E	Implementation and Education Subcommittee (of NCPGC)	VA
IAA	Inter-Agency Agreement	Federal
IDP	Information Dissemination Program	ORD
IHD	Ischemic Heart Disease QUERI Center	QUERI
IIR	Investigator Initiated Research	HSRD
IoM	Institute of Medicine	Private
IPA	Inter-Governmental Personnel Act	VA
IRB	Institutional Review Board	Generic
IRC	Implementation Research Coordinator for a QUERI Center	QUERI
IRM	Information Resources Management	VA
JCAHO	Joint Commission on Accreditation of Healthcare Organizations	Private
LIP	Locally Initiated Project	HSRD
LOI	Letter of Intent	ORD
MDRC	Management Decision Research Center	HSRD
METRIC	Measurement Excellence and Training Resource Information Center	VA
MH	Mental Health QUERI Center	QUERI
MIRECC	Mental Illness Research, Education and Clinical Center	VA
MREP	Merit Review Entry Program	HSRD
NAC	National Advisory Council	QUERI
NCI	National Cancer Institute	Federal
NCP	National Center for Health Promotion and Disease Prevention	Federal
NCPGC	National Clinical Practice Guidelines Council	VA
NCQA	National Committee for Quality Assurance	Private
NHS	National Health Service (United Kingdom)	International
NIA	National Institute of Aging	Federal
NIH	National Institutes of Health	Federal
NLB	National Leadership Board	VA
NLM	National Library of Medicine	Federal
NQF	National Quality Forum	Private
OI	Office of Information	VA
OQP	Office of Quality and Performance	VA
ORD	Office of Research and Development	VA
PADRECC	Parkinsons Disease Research, Education and Clinical Center	VA

Acronym	Full Name	Context
PCS	Patient Care Services	VA
PHS	Public Health Service	Federal
PI	Principal Investigator	Generic
PIMS	Project Information Management System	ORD
QI	Quality Improvement	Generic
QMIC	Quality Management Integration Council	VA
QMO	Quality Management Officer	VISN
QoL	Quality of Life	Generic
QUERI	Quality Enhancement Research Initiative	QUERI
QuIC	Quality Interagency Coordination Task Force	Federal
R&D	Research and Development	Generic/VA
R&M	Research and Methodology Committee	QUERI
RC	Research Coordinator for a QUERI Center	QUERI
RDIS	Research and Development Information System	HSRD
REAP	Research Enhancement Award Program	HSRD
RFA	Request for Applications	Generic
RORC	Rehabilitation Outcomes Research Center	HSRD/RRD
RRD	Rehabilitation Research and Development Service	ORD
RWJ	Robert Wood Johnson Foundation	Private
SAS	Statistical Analysis System	Private
SCI	Spinal Cord Injury QUERI Center	QUERI
SCREEN	Survey of ColoRectal Cancer Education and Environmental Needs	QUERI
SDP	Service Directed Project	QUERI
SDR	Service Directed Research	HSRD
SGIM	Society for General Internal Medicine	Private
SHG	Strategic Healthcare Group (within PCS)	VA
SOE	Strength of Evidence	Generic
SOTA	State of the Art Conference	HSRD
SPO	Special Projects Office	HSRD
SREB	Scientific Review and Evaluation Board	HSRD
SUD	Substance Use Disorder QUERI Center	QUERI
TA	Technology Assessment	Generic
TREP	Targeted Research Enhancement Program	HSRD
TRIP	Translating Research into Practice	Generic
USH	Under Secretary for Health	VA
VA	Department of Veterans Affairs	VA
VACO	Veterans Affairs Central Office	VA
VAMC	Veterans Affairs Medical Center	VA
VANTS	VA Nationwide Teleconferencing System	VA
VHA	Veterans Health Administration	VA
VHACO	Veterans Health Administration Central Office	VA
VIReC	Veterans Information Resource Center	HSRD
VISN	Veterans Integrated Service Network	VA
WOC	Without Compensation Appointment	VA

A.2 QUERI Center-Specific Acronyms

Acronym	Full Name
C4	Colorectal Cancer Care Collaborative
CanCORS	Cancer Care Outcomes Research and Surveillance System
CDE	Complete Diagnostic Evaluation
CIRP	Comprehensive Implementation Research Process
CORI	Clinical Outcomes Research Initiative
CPGC	Clinical Practice Guidelines Council
CRC-LG	CRC QUERI Leadership Group
CRCS	Colorectal Cancer Screening
CRC SAFE	Colorectal Cancer Screening Assessment and Surveillance Data System
CS	Colonoscopy
DCBE	Double Contrast Barium Enema
DSC	Direct Screening Colonoscopy
ENS	Event Notification System
FOBT	Fecal Occult Blood Test
FS	Flexible Sigmoidoscopy
GI ACA	GI Endoscopy Advance Clinic Access
GI FAC	VA GI Field Advisory Committee
GIVER	Gastroenterology Interactive Voice Education and Reminder
GPRA	Program Evaluation Team
PEG	Polyethylene glycol
QCCC	Quality Cancer Care Consortium
RT	Recommended Treatment
USPSTF	US Preventive Services Task Force

Appendix B. Publication Abstracts

Project Label	Abstract
	Burgess DJ, van Ryn M, Fu SS. Making sense of the provider role in promoting disparities. Journal of Internal Medicine 2004; 19:1154-9. The paper applies social cognition research to understanding and ameliorating the provider contribution to racial/ethnic disparities in health care. We discuss how fundamental cognitive mechanisms such as automatic, unconscious processes (e.g. stereotyping) can help explain provider bias. Even well intentioned providers who are motivated to be non-prejudiced may stereotype racial/ethnic minority members, particularly under conditions that diminish cognitive capacity. These conditions – time-pressure, fatigue and information-overload – are frequently found in health care settings. We conclude with implications of the social-cognitive perspective for developing interventions to reduce provider bias.
	Bond JH. Screening for colorectal cancer: Is there progress for early detection? Pract Gastroenterology April 2004 pp. 48, 50, 52, 54, 57-8, 60. Screening for colorectal cancer clearly saves lives and is cost-effective. High-quality scientific studies published over the past decade are the basis for three evidence-based guidelines that urge screening with one of a menu of five screening options, each of which has unique advantages and limitations. Each clinician or health care delivery system should carefully consider the information contained in this review, and, based on available resources, choose which of the five options to offer to at-risk patients. At the present time, the two options that appear to be most effective or promising are 1) screening with the combination of annual FOBT and flexible sigmoidoscopy every five years, or 2) direct colonoscopy screening every 10 years. Advocates of screening emphasize, however, that the most effective screening method may be the one that a given patient actually will agree to do. The only unacceptable option is to do no screening. There now is substantial accumulating data that indicate that screening leads to early detection of colorectal neoplasia – either early curable cancer or premalignant advanced adenomatous polyps. We now are beginning to see favorable national trends in the rates of screening, survival from colorectal cancer, and overall colorectal cancer incidence and mortality.
	Lieberman, Collins JF, Durbin TE, Weiss DG, Bond JH, and the VA Cooperative Study #380 Group. Screening for colorectal neoplasia with digital exam versus 6-sample fecal occult blood test. Annals of Internal Med. 2005; 142.:2 pp. 81-6. **Background:** Many expert panels recommend colorectal cancer screening for average-risk asymptomatic individuals older than 50 years of age. Recent studies have found that 24% to 64% of primary care providers use only the digital fecal occult blood test (FOBT) as their primary screening test. The effectiveness of a single digital FOBT is unknown. **Objective:** To compare the sensitivity and specificity of digital FOBT and the recommended 6-sample at home FOBT for advanced neoplasia in asymptomatic persons. **Intervention:** 2665 patients had 6-sample at home FOBT and digital FOBT, followed by complete colonoscopy. **Measurements:** We measured the sensitivity of digital and 6-sample FOBT for advanced neoplasia and the specificity for no neoplasia. We calculated predictive values and likelihood ratios for advanced neoplasia, defined as tubular adenomas 10 mm or greater, adenomas with villous histology or high-grade dysplasia, or invasive cancer.

Project Label	Abstract
	Results: Of all participants, 96.8% were men; their average age was 63.1 years. The 6-sample FOBT and the single digital FOBT had specificities of 93.9% and 97.5%, respectively, as defined by studying 1656 patients with no neoplasia. Sensitivities for detection of advanced neoplasia in 284 patients were 23.9% for the 6-sample FOBT and 4.9% for the digital FOBT. The likelihood ratio for advanced neoplasia was 1.68 (95% CI, 0.96 to 2.94) for positive results on digital FOBT and 0.98 (CI, 0.95 to 1.01) for negative results. **Conclusions:** Single digital FOBT is a poor screening method for colorectal neoplasia and cannot be recommended as the only test. When digital FOBT is performed as part of a primary care physical examination, negative results do not decrease the odds of advanced neoplasia. Persons with these results should be offered at home 6-sample FOBT or another type of screening test.
	Saunders CS, Bond JH. Screening for colorectal cancer: The newest evidence. Patient Care (in press).
	Baldwin LM, Dobie S, Billingsley K, Cai Y, Wright G, Dominitz JA, Barlow WE, Warren J, Taplin S. Black-white differences in receipt of recommended colon cancer treatment: what explains the disparities? Journal of National Cancer Institute 2005 (in press). Many studies have demonstrated racial differences between black and white patients in the process and outcomes of medical care. Black patients are less likely than white patients to receive screening tests, diagnostic tests, and a variety of treatments. Although these racial disparities are not uniform and some gaps have been narrowing, the disparities have been demonstrated in the care of several cancer types. For example, Schrag et al., found that after adjusting for sociodemographic, clinical and environmental characteristics, black patients were statistically significantly loss likely than white patients to receive recommended chemotherapy for stage III colon cancer. We sought to determine whether health care systems factors, specifically those related to the treating physicians or hospitals, can help explain black—white disparities in colon cancer care. For example, we examined whether differential rates of medical oncology consultation between black and white colon cancer patients existed that might have influenced adjuvant chemotherapy use in these populations. We chose to examine colon cancer treatment because of the demonstrated disparities between black and white patients in the use of adjuvant therapy and because of the clear evidence-based guidelines recommending this treatment. Findings from this work may generate systems-based interventions to reduce disparities in cancer care and motivate further research.
	McDonnell WM, Dominitz JA. CT colonoscopy. Gastroenterology 2004: 127(2):693. Letter to the Editor.
	Rudolph RE, Dominitz JA, Lampe JW, Levy L, Qu P, Li S, Lampe PD, Bronner MP, Potter JD. Risk factors for colorectal cancer in relation to number and size of aberrant crypt foci in humans. Cancer Epidemiology, Biomarkers and Prevention 2005; 14(3): 605-8. Several characteristics of aberrant crypt foci (ACF) suggest that they are precursors of colorectal cancer, but the factors that promote or inhibit their growth are largely unknown. We conducted a pilot study to explore whether factors associated with risk of colorectal cancer are also associated with number or size of rectal ACF. Thirty-two U.S. veterans, ages 50 to 80 years, were recruited to undergo

Project Label	Abstract
	magnifying chromoendoscopy for imaging of rectal ACF and colonoscopy for identification of polyps or cancer. Participants completed a questionnaire on cigarette smoking, use of nonsteroidal anti-inflammatory drugs (NSAIDs), and family history of colorectal cancer. Fisher's exact test was used to assess the statistical significance of associations between colorectal cancer risk factors and characteristics of ACF. Cochran-Mantel-Haenszel statistics and polytomous regression were used to test the significance of associations adjusted for age. Participants with a history of adenoma had more ACF than those without (age-adjusted P = 0.02), but the numbers in the two groups overlapped markedly. Older participants had more (P = 0.06) and larger (P = 0.009) ACF than younger participants. No associations were identified between either ACF number or size and cigarette smoking, use of NSAIDs, or family history of colorectal cancer. These findings suggest that persons with adenomas have somewhat more rectal ACF than persons without, and that older age is a risk factor for ACF growth. Future research should be directed toward developing techniques to identify ACF that are likely to progress to cancer and the modifiable factors that promote or inhibit such progression.
	Selinger RRE, Norman S, Dominitz JA. Failure of health care professionals to accurately interpret fecal occult blood tests. Am J Med 2003;114:64-7. Although colorectal cancer is the second leading cause of death due to cancer in the United States, mortality has been declining, in part because of earlier detection. Guaiac-based fecal occult blood testing is used widely in screening for colorectal cancer. It has been shown to reduce the incidence of cancer and mortality in randomized clinical trials and is recommended by many professional organizations. Fecal occult blood testing allows early detection of colorectal cancer or premalignant polyps at a treatable stage. However, its cost-effectiveness in asymptomatic patients depends on several factors, including sensitivity, specificity, and cost. Early detection of colorectal cancer also relies on appropriate performance of the test. When inexperienced personnel interpret test cards, the rate of positivity increases fourfold, whereas the positive predictive value decreases considerably. Although fecal occult blood testing has been shown to improve outcomes in rigorously controlled trials, its actual effectiveness in general practice has not been demonstrated. The purpose of this analysis was to determine the proportion of health care providers who perform and interpret fecal occult blood testing inaccurately in a U.S. health care setting, with the goal of identifying target groups in which further education is needed.
Literacy & Race Barriers	Dolan NC, Ferreira MR, Davis TC, Fitzgibbon ML, Rademaker A, Liu D, Schmitt BP, Gorgy NG, Wolf M, Bennett CL. Colorectal cancer screening knowledge attitudes and beliefs among veterans: does literacy make a difference? J. Clin. Oncology 2004; 22:2617-22. **PURPOSE:** To evaluate whether lower literacy is associated with poorer knowledge and more negative attitudes and beliefs toward colorectal cancer screening among veterans without recent colorectal cancer screening. **PATIENTS AND METHODS:** Three hundred seventy-seven male veterans, age 50 years and older, who had not undergone recent colorectal cancer screening, were surveyed about their knowledge, attitudes, and beliefs regarding colorectal cancer screening. Patients' literacy was assessed with the Rapid Estimate of Adult Literacy in Medicine, an individually administered screening test for reading. **RESULTS:** Thirty-six percent of the 377 men had an eighth grade literacy level or higher. Men with lower literacy were 3.5 times as likely not to have heard about colorectal cancer (8.8% v 2.5%; P =.006), 1.5 times as likely not to know about screening tests (58.4% v 40.9%; P =.0001), and were more likely to have negative attitudes about fecal occult blood testing (FOBT), but not about flexible sigmoidoscopy. Specifically, men with lower literacy skills were two times as likely to be worried that FOBT was messy (26.7% v 13.3%; P =.008), 1.5 times as likely to feel that

Project Label	Abstract
	FOBT was inconvenient (28.7% v 18%; P =.05), and four times as likely to state they would not use an FOBT kit even if their physician recommended it (17.9% v 4.0%; P =.02). **CONCLUSION:** Limited literacy may be an overlooked barrier in colorectal cancer screening among veterans.
Literacy & Race Barriers	Dolan NC, Ferreira MR, Fitzgibbon ML, Davis TC, Rademaker A., Liu D, Lee J, Wolf M, Schmitt BP, Bennett CL. Colorectal cancer screening among African-american and white males in a VA general medicine practice. Am. J. Prev. Med. 2005; 28:479-82. **BACKGROUND:** Population-based studies from Medicare and privately insured individuals have consistently identified lower rates of colorectal cancer-screening tests among African-American versus white individuals. The purpose of this study was to evaluate whether, at a Veterans Affairs (VA) medical center, similar racial/ethnic differences in colorectal cancer screening could be identified. **METHODS:** Study participants were male veterans, aged > or =50, attending a general medicine clinic in a VA hospital, who had not had either a fecal occult blood test (FOBT) within the past year or a flexible sigmoidoscopy/colonoscopy within the past 5 years. Based on review of electronic medical records, rates of physician recommendation for FOBT, flexible sigmoidoscopy, or colonoscopy, and patient completion of these tests were obtained and compared by race/ethnicity. **RESULTS:** Sixty percent of 1599 veterans had not undergone recent colorectal cancer screening. Physicians recommended colorectal screening tests equally among African-American and white patients (71.0% vs 68.2%, p=0.44). African-American patients were 1.3 times more likely than white patients to receive colorectal screening procedures (36.3% vs 28.9%, p=0.03). **CONCLUSIONS:** In contrast to other settings, in a general medicine clinic at a VA hospital, rates of colorectal cancer-screening tests were not lower for African-American patients compared to white patients.
	Ferreira MR, Dolan NC, Fitzgibbon MN, Davis TC, Gorby N, Ladewski L, Liu D, Rademaker A, Medio F, Schmitt BP, Bennett CL. A health care provider-directed intervention to increase colorectal cancer screening among veterans: results of a randomized controlled trial. J. Clin. Oncol. 2005; 23:1548-54. **PURPOSE:** Colorectal cancer screening is the most underused cancer screening tool in the United States. The purpose of this study was to test whether a health care provider-directed intervention increased colorectal cancer screening rates. **PATIENTS AND METHODS:** The study was a randomized controlled trial conducted at two clinic firms at a Veterans Affairs Medical Center. The records of 5,711 patients were reviewed; 1,978 patients were eligible. Eligible patients were men aged 50 years and older who had no personal or family history of colorectal cancer or polyps, had not received colorectal cancer screening, and had at least one visit to the clinic during the study period. Health care providers in the intervention firm attended a workshop on colorectal cancer screening. Every 4 to 6 months, they attended quality improvement workshops where they received group screening rates, individualized confidential feedback, and training on improving communication with patients with limited literacy skills. Medical records were reviewed for colorectal cancer screening recommendations and completion. Literacy level was assessed in a subset of patients. **RESULTS:** Colorectal cancer screening was recommended for 76.0% of patients in the intervention firm and for 69.4% of controls (P = .02). Screening tests were completed by 41.3% of patients in the intervention group versus 32.4% of controls (P = .003). Among patients with health literacy skills less than ninth grade, screening was completed by 55.7% of patients in the intervention group versus 30% of controls (P < .01). **CONCLUSION:** A provider-directed intervention with feedback on individual and firm-specific screening rates significantly increased both recommendations and colorectal cancer screening completion rates among veterans.
Patient/Provider Ed.	Ferreira MR, Dolan NC, Fitzgibbon ML, Newlin R, Davis TC, Rademaker A, Schmitt BP, Medio F, Bennett CL. An intervention to increase colorectal cancer screening among veterans: rationale and study design.

Project Label	Abstract
	International Journal of Cancer Prevention 2005 (in press). **Background.** Colorectal cancer is the third most common cancer and cause of cancer-related mortality in the US. Despite the document efficacy of screening and current guidelines, colorectal cancer screening remains underutilized. **Methods.** The primary aim of this intervention is to increase adherence to colorectal cancer screening. In this study one clinic is randomized to a combined patient/physician intervention and one clinic is the standard care control. **Results.** This paper presents the rationale, design, and study instruments for the intervention. The primary outcomes are the proportion of patients who complete colorectal cancer screening and the proportion of patients who receive a screening recommendation. Baseline and outcome date will be presented in future papers. **Conclusions.** Colorectal cancer screening is underutilized, especially among low socioeconomic groups. Barriers at patient and physician level contribute to this underutilization. Interventions targeting patients and physicians may increase screening adherence. This paper describes a theory-based, combined patient/physician intervention, tailored to a Veteran population.
	Wolf MS, Rademaker A, Bennett CL, Ferreira MR, Dolan NC, Davis TC, Medio F, Liu D, Lee J, Fitzgibbon ML. Colon cancer screening knowledge and attitudes among veterans: development of a brief survey. Preventing Chronic Disease 2005; 2: A11. **Introduction.** Poor knowledge of and negative attitudes toward available screening tests may account in part for colorectal cancer screening rates being the lowest among 17 quality measures reported for the Department of Veterans Affairs health care system, the largest integrated health system in the US. The purpose of this study was to develop a brief assessment tool to evaluate knowledge and attitudes among veterans toward colorectal cancer screening options. **Methods.** A 44-item questionnaire was developed to assess knowledge, attitudes, and beliefs about colorectal cancer and screening and was then administered as part of an ongoing randomized controlled trial among 388 veterans receiving care in a general medicine clinic. Sixteen candidate items on colorectal cancer knowledge, attitudes, and beliefs were selected for further evaluation using principal components analysis. Two sets of items were then further analyzed. **Results.** Because the Cronbach alpha for beliefs was low, the beliefs subscale was deleted from further consideration. The final scale consisted of seven items: a four-item attitude subscale and a three-item knowledge subscale. Twelve-month follow-up data were used to evaluate predictive validity; improved knowledge and attitudes were significantly associated with completion of flexible sigmoidoscopy and completion of either flexible sigmoidoscopy or colonoscopy. **Conclusion.** The two-factor scale offers a parsimonious and reliable measure of colorectal cancer screening knowledge and attitudes among veterans. This colorectal Cancer Screening Survey (CSS) may especially be useful as an evaluative tool in developing and testing of interventions designed to improve screening rates within this population.
Race & CDE	Fisher DA, Dougherty K, Martin C, Galanko J, Provenzale D, Sandler RS. Race and colorectal cancer screening: a population-based study in North Carolina. NC Med J. 2004; 65:12-5. **OBJECTIVE:** National and state data document racial differences in colorectal cancer (CRC) mortality and incidence. Screening for CRC reduces cancer incidence and deaths. Racial differences in colorectal cancer screening behavior may contribute to the racial disparity in incidence and mortality. The purpose of this study was to determine if colorectal cancer screening rates are different between blacks and whites while controlling for potential confounders. **STUDY DESIGN:** Cross-sectional survey. DATA SOURCE(S)/**STUDY SETTING:** We used data from the North Carolina Colon Cancer Study, a population-based case-control study

Project Label	Abstract
	conducted in 33 counties of North Carolina. We analyzed data from 598 control subjects who were eligible for colorectal cancer screening. **METHODS:** Trained nurses conducted face-to-face interviews from October 1996 through October 2000. **RESULTS:** Overall, 50% of the respondents were compliant with CRC screening guidelines. In the multivariable logistic regression model having a regular doctor and participation in a general medical exam were significantly associated with current screening status with odds ratios (OR) (95% confidence interval (CI)) of 3.8 (1.7-8.3) and 3.7 (2.1-6.7), respectively. Older age was a significant predictor of current screening status with an OR (95% CI) of 2.9 (1.7-4.8) for those 60-69 compared to respondents 50-59 and OR 3.2 (1.9-5.5) for those 70 and older compared to respondents 50-59. After adjusting for age, having a regular doctor and participation in general medical exams, race was not significantly associated with current CRC screening status, with an OR of 1.1 (95% CI 0.7-1.6). **CONCLUSION:** CRC screening rates in North Carolina were low. Race was not a significant determinant of screening behavior and therefore does not explain the racial disparity in incidence or survival. Older age, having a regular doctor and participating in general medical exams were significant predictors of CRC screening. **RELEVANCE:** This study reinforces the fact that screening rates in North Carolina are low despite the strong evidence that colorectal cancer screening reduces cancer deaths.
	Fisher DA, Martin C, Galanko J, Sandler RS, Noble MD, Provenzale D. Risk factors for advanced disease in colorectal cancer. Amer J Gastroenterol 2004; 99:2019-24. **OBJECTIVES:** The goal of this study was to identify predictors of presenting with late-stage colorectal cancer with a focus on potentially modifiable factors. **METHODS:** This was a multicenter, case-based study of patients with colorectal cancer. Detailed information about the cancer was abstracted from the tumor registries, pathology reports, and medical records. The remaining information was obtained by telephone interview. Inclusion criteria were age 40-85 yr with a first diagnosis of histologically proven colorectal cancer between July 1, 1997 and January 1, 2001. Simple contingency table methods were used to examine the relationship between potential risk factors for early versus advanced-stage disease. Logistic regression was performed to simultaneously control for potential confounding factors. **RESULTS:** There was complete information for 549 respondents. Approximately, 43% of the sample presented with late-stage colorectal cancer. In univariate analysis, lacking a usual source of health care (doctor's office or clinic), no participation in any colorectal cancer screening test in the prior 10 yr, symptoms of blood in stool, and unexplained weight loss were associated with late-stage colorectal cancer. In the logistic regression model, only lacking a usual source of healthcare and unexplained weight loss were associated with late-stage colorectal cancer with odds ratios (95% confidence intervals) of 0.4 (0.2-0.6) and 1.9 (1.2-3.0), respectively. **CONCLUSIONS:** These results suggest that system changes in the VA health-care system that increase access to and improve utilization of primary care may reduce presentation with late-stage colorectal cancer and thus, reduce mortality from colorectal cancer in veterans.
	Fisher DA, Judd L, Sanford NS. Inappropriate colorectal cancer screening: findings and implications. Am J Gastroenterol 2005 (in press). **Objectives:** Inclusion of colorectal cancer screening as a performance measure in the Veterans Health Administration (VHA) health system appears to have improved screening rates but may have also increased inappropriate screening. Our aim was to ascertain whether the fecal occult blood test (FOBT) was being ordered appropriately. **Methods: We examined records of 500 consecutive primary care patients at a single VHA facility for whom FOBT had been ordered to determine whether the FOBT was appropriate and, if not, the reason why.** Results: **We found that 18% of the sample had severe co-morbid illness, 13 % had signs or symptoms of gastrointestinal. blood loss, 7% had a history of colorectal neoplasia or inflammatory bowel disease (high risk), 5% had undergone**

Project Label	Abstract
	colonoscopy within the prior five years and 3% were younger than 50 years. Overall, 35% of the patients had at least one reason that the FOBT was inappropriate and at least 19% of the patients should not have undergone any colorectal cancer test for screening or diagnosis. Conclusions: **The FOBT order was inappropriate in a third of the sample, most commonly because of a documented life-limiting co-morbidity. In addition, data suggested that FOBT was being used for diagnosis instead of screening. Screening patients unlikely to live long enough to develop and die from colorectal cancer provides no benefit and places these individuals at unjustifiable risk. Additionally, inappropriate screening utilizes resources which could be used to improve screening and follow-up for eligible individuals.**
	Sultan S, Fisher DA, Voils C, Kinney AY, Sandler RS, Provenzale D. The impact of functional support on health related quality of life in colon cancer patients. Cancer 2004; 101:2737-43. **BACKGROUND:** It has been shown that social integration and the availability of social support influence quality of life. However, little is known about the relation between social support and mental and physical health in patients with colorectal cancer. In the current study, the authors examined the effects of social network size, as well as emotional and instrumental support, on health-related quality of life (HRQOL) in patients with colorectal cancer. **METHODS:** Six hundred thirty-six veterans with colorectal cancer were asked to complete a telephone interview, which included a measure of social support (the Berkman-Syme Index) and the Medical Outcomes Study Short Form 12-Item Survey. Mean physical composite scale (PCS) and mental composite scale (MCS) scores were compared across groups. **RESULTS:** No difference in mean PCS or MCS scores was found between patients who had larger social networks and patients who had smaller social networks. The availability of emotional and instrumental support was associated with higher MCS scores, whereas the availability of instrumental support was associated with lower PCS scores. **CONCLUSIONS:** Irrespective of network size, the availability of emotional support and instrumental support had an impact on HRQOL in patients with colorectal cancer. More emphasis needs to be placed on understanding how various types of social support, individually and collectively, influence physical and mental health in patients with colorectal cancer.
	Imperiale TF, Ransohoff DF, Itzhowitz SH, Turnbull BA, Ross ME. Comparison of a stool DNA panel with hemoccult II for non-invasive screening for colorectal neoplasia in an average risk population. N Eng J Med 2004; 351:2704-14. **BACKGROUND:** Although fecal occult-blood testing is the only available noninvasive screening method that reduces the risk of death from colorectal cancer, it has limited sensitivity. We compared an approach that identifies abnormal DNA in stool samples with the Hemoccult II fecal occult-blood test in average-risk, asymptomatic persons 50 years of age or older. **METHODS:** Eligible subjects submitted one stool specimen for DNA analysis, underwent standard Hemoccult II testing, and then underwent colonoscopy. Of 5486 subjects enrolled, 4404 completed all aspects of the study. A subgroup of 2507 subjects was analyzed, including all those with a diagnosis of invasive adenocarcinoma or advanced adenoma plus randomly chosen subjects with no polyps or minor polyps. The fecal DNA panel consisted of 21 mutations. **RESULTS:** The fecal DNA panel detected 16 of 31 invasive cancers, whereas Hemoccult II identified 4 of 31 (51.6 percent vs. 12.9 percent, P=0.003). The DNA panel detected 29 of 71 invasive cancers plus adenomas with high-grade dysplasia, whereas Hemoccult II identified 10 of 71 (40.8 percent vs. 14.1 percent, P<0.001). Among 418 subjects with advanced neoplasia (defined as a tubular adenoma at least 1 cm in diameter, a polyp with a villous histologic appearance, a polyp with high-grade dysplasia, or cancer), the DNA panel was positive in 76 (18.2 percent), whereas Hemoccult II was positive in 45 (10.8

Project Label	Abstract
	percent). Specificity in subjects with negative findings on colonoscopy was 94.4 percent for the fecal DNA panel and 95.2 percent for Hemoccult II. **CONCLUSIONS:** Although the majority of neoplastic lesions identified by colonoscopy were not detected by either noninvasive test, the multitarget analysis of fecal DNA detected a greater proportion of important colorectal neoplasia than did Hemoccult II without compromising specificity. Copyright 2004 Massachusetts Medical Society.
	Kahi CJ, Imperiale TF. Do aspirin and non-steroidal anti-inflammatory agents cause a false positive fecal blood test? Am J Medicine 2004; 837-41. **PURPOSE:** To determine whether use of regular aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs) is a risk factor for a false-positive fecal occult blood test result. **METHODS:** Consecutive patients referred for colonoscopy for a positive fecal occult blood test result at a Veterans Affairs hospital were eligible. Patients with hematochezia, peptic ulcer disease, or unevaluated dyspepsia requiring antacids, or who used warfarin, were excluded. Regular aspirin and NSAID use was defined as at least one daily dose for at least 3 days per week. Colonoscopic findings unlikely to explain a positive test result alone were defined a priori as diverticulosis, hemorrhoids, or polyps <1.0 cm with no villous histology. Findings likely to explain a positive test result included cancer and advanced polyps. **RESULTS:** The sample comprised 193 veterans with a mean (+/- SD) age of 66 +/- 10 years; 98% were male and 86% were white. No colonoscopic findings explained the positive fecal occult blood test result in 153 patients (79%). One hundred and thirty-five patients (70%) were regular aspirin or NSAID users, of whom 21% (n = 29) had findings to explain the positive test results, compared with 19% (11/58) of nonusers (P = 0.7). There was no relation between aspirin dose and colonoscopic findings unlikely to explain a positive test result. Multivariate analysis found no association between regular aspirin or NSAID use and a false-positive test result (odds ratio = 0.85; 95% confidence interval: 0.39 to 1.84). **CONCLUSION:** Aspirin and NSAID use were not risk factors for a false-positive fecal occult blood test result in this study.
	Kochevar, LK and Yano, EM. Understanding Health Care Organization Needs and Context: Beyond Performance Gaps. In press, Journal of General Internal Medicine. Significant efforts have been invested in improving our understanding of how to accelerate and magnify the impact of research on clinical practice. While approaches to fostering translation of research into practice are numerous none appears to be superior and the evidence for their effectiveness is mixed. Lessons learned from formative evaluation have given us a greater appreciation of the contribution of context to successful implementation of quality improvement (QI) interventions. While formative evaluation is a powerful tool for addressing context effects *during* implementation, lessons learned from the social sciences (including management and operations research, sociology and public health) show us that there are also powerful *pre-implementation* tools available to us. This paper discusses how we might integrate these tools into implementation research. We provide a theoretical framework for our need to understand organizational contexts and how organizational characteristics can alert us to situations where pre-implementation tools will prove most valuable.
	Kochevar, LK and Yano, EM. Understanding Health Care Organization Needs and Context: Beyond Performance Gaps. Journal of General Internal Medicine (in press). Significant efforts have been invested in improving our understanding of how to accelerate and magnify the impact of research on clinical practice. While approaches to fostering translation of research into practice are numerous none appears to be superior and the evidence for their effectiveness is mixed. Lessons learned from formative evaluation have given us a greater appreciation of the contribution of context to successful implementation of quality improvement (QI) interventions. While formative evaluation is a powerful

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	tool for addressing context effects *during* implementation, lessons learned from the social sciences (including management and operations research, sociology and public health) show us that there are also powerful *pre-implementation* tools available to us. This paper discusses how we might integrate these tools into implementation research. We provide a theoretical framework for our need to understand organizational contexts and how organizational characteristics can alert us to situations where pre-implementation tools will prove most valuable.
	Sales, AE, Smith, JL, Curran, G, Kochevar, LK. Models, strategies and tools: Theory in implementing evidence-based findings into healthcare practice. Journal of General Internal Medicine (in press). This paper presents a case for careful consideration of theory in planning to implement evidence-based best practices into clinical care. As described, theory should be tightly linked to strategic planning through careful choice or creation of a framework. Strategies should be linked to specific interventions to be implemented, and the choice of tools should match the interventions and overall strategy, linking back to the original theory and framework. The thesis advanced is that in most studies where there is an attempt to implement planned change in clinical processes, theory is used loosely. The example used comes from the Mental Health Quality Enhancement Research Initiative (MH QUERI), and describes an implementation effort to increase appropriate use of antipsychotic medication among schizophrenic patients in the Veterans Health Administration.
	Hagedorn, H, Hogan, M, .Smith, JL, Bowman, C. Curran, G, Espadas' D, Kimmel, B, Kochevar, LK, Legro, MW, Sales, AE. Lessons Learned About Implementing Research Evidence Into Clinical Practice: **Experiences from VA QUERI.** Journal of General Internal Medicine (in press). The mission of the Veterans Health Administration's Quality Enhancement Research Initiative (QUERI) is to enhance the quality and outcomes of VHA healthcare by systematically implementing clinical research findings into routine care provided for highly prevalent and burdensome conditions among veterans. Lessons learned about implementation research based on the combined experiences of the QUERI centers are presented in a framework focusing on: 1) the ***evidence*** that is used as the basis for implementation work, 2) the ***context*** in which the implementation work is carried out, and 3) the methods of ***facilitation*** used for implementation. Major themes that can be drawn from the lessons are as follows. During preparation for an implementation effort, focus on implementing practices with a strong evidence base and factor time into the project to learn about the organization that will be the target of the intervention. To foster a positive working relationship with the targeted organization, involve all relevant stakeholders in intervention planning and implementation, respond quickly to questions and concerns, and focus on monitoring and sustaining momentum. A formative evaluation should be incorporated into data collection procedures to identify key barriers and facilitators to the use of evidence-based practices, and also to explore questions regarding how and why a particular intervention was or was not successful. During the intervention phase, be flexible regarding the specific ways that an organization chooses to implement the intervention while still insuring that the intervention remains consistent with the evidence base that supports it.
	Ford ME, Randolph V, Hopkins-Johnson L, Eason SL, Havstad S, Jankowski M, Swanson GM, Vernon SW. Design of a case management approach to enhancing cancer screening trial adherence among older African American men. Journal of Aging and Health 16 (Supplement):39-57, 2004. **PURPOSE:** The purpose of this study was to enhance retention among African American men enrolled in a cancer screening trial.

Project Label	Abstract
	DESIGN: A telephone-based, randomized trial design was used. The intervention group included 352 African American men aged 55+. Case managers contacted participants at least monthly and provided information and referral services to participants and their relatives. **RESULTS:** The mean age of participants was 65.7 years. A total of 14,978 calls were made resulting in 780 referrals. The 10 most frequent referrals were for scheduling medical appointments, health information, insurance information, legal aid, transportation, cancer screening information, information technology/computer information, employment, housekeeping/chore services, and food programs. **CONCLUSIONS:** The case managers served as links between participants and community-based resources. The types of referrals made could be associated with the age-related needs of the participants.
NetLET	Meissner HI, Smith RA, Rimer BK, Briss P, Rakowski W, Wilson K, Vernon SW. Promoting cancer screening: learning from experience. Cancer 101 (Supplement) 2004. This article provides an overview of behavioral and social science cancer screening intervention research and introduces the scope of topics addressed in this supplement to Cancer. The authors identify and address issues to consider before conducting interventions to promote the uptake of screening tests, such as the benefits and harms associated with screening. Trends in the use of cancer screening tests are discussed in the context of their efficacy and adoption over time. Both the development and breadth of social and behavioral intervention research intended to increase the use of effective tests are reviewed as background for the articles that follow. The application of the lessons from this extensive knowledge base not only should accelerate the uptake of the effective cancer screening tests currently available, but also can guide future directions for research.
	Seeff LC, Nadel MR, Klabunde C, Thompson T, Shapiro JA, Vernon, SW. Patterns and predictors of colorectal cancer test use in the adult US population. Cancer 101 (Supplement) 2004. **BACKGROUND:** Screening is effective in reducing the incidence and mortality of colorectal cancer. Rates of colorectal cancer test use continue to be low. **METHODS:** The authors analyzed data from the National Health Interview Survey concerning the use of the home-administered fecal occult blood test (FOBT) and sigmoidoscopy/colonoscopy/proctoscopy to estimate current rates of colorectal cancer test use and to identify factors associated with the use or nonuse of tests. **RESULTS:** In 2000, 17.1% of respondents reported undergoing a home FOBT within the past year, 33.9% reported undergoing an endoscopy within the previous 10 years, and 42.5% reported undergoing either test within the recommended time intervals. The use of colorectal cancer tests varied by gender, race, ethnicity, age, education, income, health care coverage, and having a usual source of care. Having seen a physician within the past year had the strongest association with test use. Lack of awareness and lack of physician recommendation were the most commonly reported barriers to undergoing such tests. **CONCLUSIONS:** Less than half of the U.S. population age >/= 50 years underwent colorectal cancer tests within the recommended time intervals. Educational initiatives for patients and providers regarding the importance of colorectal cancer screening, efforts to reduce disparities in test use, and ensuring that all persons have access to routine primary care may help increase screening rates.
	Vernon SW, Briss P, Tiro J, Warnecke RB. Some methodologic lessons learned from cancer screening studies. Cancer 101 (Supplement) 2004. Credible and useful methodologic evaluations are essential for increasing the uptake of effective cancer screening tests. In the current

Project Label	Abstract
	article, the authors discuss selected issues that are related to conducting behavior change interventions in cancer screening research and that may assist researchers in better designing future evaluations to increase the credibility and usefulness of such interventions. Selection and measurement of the primary outcome variable (i.e., cancer screening behavior) are discussed in detail. The report also addresses other aspects of study design and execution, including alternatives to the randomized controlled trial, indicators of study quality, and external validity. The authors conclude that the uptake of screening should be the main outcome when evaluating cancer screening strategies; that researchers should agree on definitions and measures of cancer screening behaviors and assess the reliability and validity of these definitions and measures in different populations and settings; and that the development of methods for increasing the external validity of randomized designs and reducing bias in nonrandomized studies is needed.
	Etzioni DA, Yano EM, Rubenstein, LV, Lee ML, Ko CY, Brook RH, Parkerton PH, Soban LM, Asch SM. Measuring the quality of colorectal cancer screening: are screening rates adequate? Diseases of the Colon and Rectum (under review).
	Soban JM, Yano, EM. The impact of primary care resource sufficiency on prevention performance. Ambulatory Care Management 2005; 28(3): 221-43. Organizational factors influence the quality of preventive care. Combining facility-level data from a national organizational survey and centrally available, externally abstracted chart review data on prevention performance, we assessed the relationship between structural features of primary care departments and the quality of preventive care delivered. Primary care practice resources were significantly and positively associated with the delivery of 6 of 9 preventive services. Adjusting for facility size and academic affiliation, these resource arrangements accounted for substantial variation in 8 of 9 services. Assuring high-quality prevention performance requires ongoing investment in primary care-based infrastructure.

Appendix C. Projects Abstracts, Active and Completed Projects

Core Projects

Screening Colonoscopy Barriers	Provider Interview Study: Focus on Acceptability of Direct Screening Colonoscopy and Identification of Methods to Increase Endoscopic Appointment Completion Rates Burgess, Diana & Kochevar, Laura CCDOR (HSR&D LIP) OBJECTIVES: (1) To gain a greater understanding of providers' perceptions and benefits of, barriers to, and key issues in moving to direct screening colonoscopy (DSC) at the Minneapolis VAMC to inform decision-making regarding the value of implementing a DSC intervention. (2) To gather data necessary to design multifaceted, cost-effective strategies for increasing endoscopic appointment completion rates. These data and resulting intervention designs will allow us to develop a proposal for funding to test intervention effectiveness. RESEARCH DESIGN/METHODOLOGY: Forty-nine providers will be recruited from the list of primary care providers (physicians, nurse practitioners, physician assistants, RN's) in General Internal Medicine and GI at the Minneapolis VAMC. Providers will be sent a letter in which they will be invited to participate in an interview sponsored by CCDOR, to get their perspective on issues involving colorectal cancer screening and endoscopic procedures. Following this letter, they will be contacted directly by phone or in person to obtain informed consent and schedule a time for a 30-minute interview. An experienced interviewer will conduct semi-structured interviews (which will be tape-recorded), using an interview guide developed by the project investigators and pilot tested on VAMC providers. Providers will be asked to identify benefits, barriers and key issues in moving to direct screening colonoscopy (DSC) at the Minneapolis VAMC. In addition to exploring interviewees' perceptions, beliefs and attitudes, the interviewer will seek input on capacity and system issues that would facilitate or inhibit the transition to DSC. Providers will also be asked about how they identify patients at high risk for failing to successfully complete their endoscopic appointment and what their recommendations are for effective intervention strategies to increase endoscopic appointment completion rates. The ability to integrate intervention strategies into existing clinic workflow will be probed. At the end of the interviews, respondents will be asked if they would be interested in a follow-up interview in which they would assess constructed case descriptions and estimate the risk of failure to complete an endoscopic appointment. If the participant expresses interest, a follow-up interview will be scheduled. The participant will be re-consented at the follow-up interview. The cases will be constructed to reflect factors that the participant cited as indicative of increased risk of failure to complete an endoscopic appointment. The participants' assessment of the constructed cases will be used to validate the responses given at the initial interview. CLINICAL SIGNIFICANCE: (1) The Minneapolis GI service and CRC QUERI is considering proposing a direct screening colonoscopy trial. The proposed study will enable providers to contribute valuable feedback on support required and issues related to the DSC trial and will give providers a voice in the process, which is expected to increase the acceptability of this study, if it were to occur. The proposed project represents a rapid, utilization focused needs-assessment necessary for the

	colorectal cancer QUERI to capitalize on an opportunity for subsequent research testing the acceptability, screening penetration, adverse events, reduction in late-stage cancer detection, and efficiency of direct screening colonoscopy. (2) Canceled endoscopy appointments add to both the cost and wait times for endoscopies. The GI endoscopy clinic reports a sub-optimal 54% appointment completion rate. A move to DSC will require that we recoup the endoscopic capacity currently lost to clinic no-shows and cancellations. Experienced providers can provide invaluable insights into identifying at risk patients and providing support they may need to successfully complete the endoscopic procedure. VALUE TO CRC-QUERI STRATEGIC GOALS: CRC QUERI's highest priority goal is to increase the number of veterans who successfully complete a CDE following a positive CRC screen. DSC eliminates the distinction between screening and CDE and is therefore a promising potential solution to this issue. This study should provide insight into both the capitol and psychological challenges that must be addressed in developing a DSC program. Additionally, this study contributes to CRC QUERI's methodological expertise by employing a unique technique to validate findings from qualitative interviews. In a separate post-interview session, participants will evaluate case studies that are constructed based on the participant's initial interview responses. Consistency between the initial interview and case study indicates test-retest validity
Cancer Registry	Tumor Registry Dominitz, Jason ERIC OBJECTIVES: The aim of this study is to determine the extent to which VA Central Cancer Registry (CCR) information agrees with medical record review and with clinical information abstracted from administrative databases for patients treated within VISN 20. Specific items to validate include the diagnosis of colorectal cancer and tumor stage at diagnosis. RESEARCH DESIGN/METHODOLOGY: The study will be a retrospective review of existing data. Calendar years 1999 through 2003 will comprise the study period. STUDY POPULATIONS: Two study populations will be compiled: Veterans listed in the VA CCR as having been diagnosed with colorectal cancer at a VISN 20 facility during the study period and Veterans listed in the VISN 20 data warehouse (CHIPS) with a diagnosis of colorectal cancer or with SNOMED codes indicating a colorectal neoplasm during the study period. Prevalent cases will be excluded. In addition to VA CCR and CHIPS data, anatomic pathology reports, discharge summaries and other notes will be extracted from VistA for veterans in either of the above populations. ANALYSIS: Data analysis will include comparisons of diagnosis and staging information available from each of the three data sources. The presence of Tumor Board or Oncology notes can be determined through CHIPS. Anatomic pathology reports will be held as the gold standard for this report when determining the presence of a malignancy. The kappa statistic will be used to assess pair-wise agreement in the diagnosis of an incident cancer among the three databases. Although staging information is more difficult to determine, Tumor Board, Oncology, Radiation therapy notes and discharge summaries will be reviewed to determine this information. If stage cannot be identified specifically from a note or discharge summary, a clinician will review the medical record, blinded to the Tumor Registry stage. The kappa statistic will be used to assess pair-wise agreement in cancer stage between the registry and the chart review. Additional analyses will be performed to determine if agreement varies across facility types or according to patient characteristics (e.g. service

	connection, regular VA users, Medicare eligible age). Case details that will be abstracted include demographics (e.g. age, gender, race, service connection, zip code), health care utilization (e.g. number of VA visits in the past year), medical facility, clinical information (e.g. tumor location, stage, presence of distant metastases) and treatments administered (e.g. chemotherapy, radiation therapy, surgery). Agreement among the data sources will be determined for those data elements appearing in more than one data source. To compare characteristics according to source of information, the chi-square statistic will be used for categorical variables and one-way analysis of variance for continuous variables such as age. VALUE TO CRC-QUERI STRATEGIC GOALS: Accurate patient-level information is essential to any VA effort to improve the VA's CRC screening and care processes (CRC QUERI Goal I). By working closely with administrators of CCR and CHIPS databases, this study will allow us to identify inaccuracies in the VA's data resources and develop systems to correct identified problems. Beyond CRC, findings from this work may suggest improvements in the collection, management, and utilization of VA patient data that will benefit other healthcare domains. This project also strengthens the relationship between QUERI and the VACCR.
Event Notification	CRT 02-059 Translation of CRC Screening Guidelines to Practice - An Intervention Humphrey, Linda NCI OBJECTIVES: 1. To implement a colorectal cancer screening event notification system intervention (CRC-ENS) to improve complete evaluation of patients with a positive FOBT at four selected VA Medical Centers; 2. To conduct formative evaluation to identify implementation barriers and facilitators and to guide modifications of the CRC-ENS; 3. To conduct an outcome evaluation to determine the effectiveness of the intervention to: a. increase the proportion of patients with a positive FOBT receiving CDE; b. reduce the time-lag between notification of a positive FOBT result and scheduling of a follow-up endoscopic procedure. RESEARCH DESIGN/METHODOLOGY: The CRC-ENS intervention employs a relatively simple alteration to the current electronic mechanism for notifying the primary care clinician of when a positive FOBT is recorded. With the CRC-ENS, this notification will be forwarded to the gastroenterology (GI) clinic as well as the primary care provider (PCP). This notification at the GI clinic will set off a cascade of events that would normally only be triggered by a consult request from the PCP. In this translation study, eight participating VHA sites will be randomly assigned to either the CRC-ENS intervention or comparison group. The proposed project will take two years to complete. During the first three months project start-up activities, including recruitment and randomization of sites will be conducted. During months three to six pre-intervention change of awareness strategies will be carried out at all intervention sites. The CRC-ENS intervention will be implemented in months six to 18 and formative evaluation, including three sets of focus groups will be carried out throughout the intervention period. Post-intervention data collection, outcome evaluation and dissemination of results will be carried out in months 18-24. CLINICAL SIGNIFICANCE: Colorectal cancer is the second leading cause of cancer-related deaths in the United States. Results from randomized clinical trials and intervention studies have suggested that implementation of a CRC screening program for men and women over 50 years of age results in reduced CRC mortality. However, for this reduction in mortality

	to be fully realized, it is imperative that all positive screening tests are followed by complete diagnostic evaluation (CDE). Numerous intervention programs have been used to improve initial CRC screening rates. Data indicate that outside of the research setting, less than half of patients with a positive FOBT screening result undergo CDE. To enhance the translation of this best practice recommendation to clinical practice, we propose to implement an electronic event notification intervention (CRC-ENS) directed at making physician and system level changes to increase the proportion of patients with an abnormal FOBT that undergo CDE. VALUE TO CRC-QUERI STRATEGIC GOALS: This intervention is design specifically to improve completion rates and wait times for CDE following a positive FOBT, FS, or DCBE (CRC QUERI Goal I). Relationship of principal investigator/project to CRC QUERI coordinating center: The project was originated by CRC QUERI ECs Jackie Shannon and Mark Helfand. Research Coordinator Laura Kochevar is a coinvestigator.
Colo-prep	Effect of a System for Determining Method of Preparation for Colonoscopy Imperiale, Thomas CRC-QUERI BACKGROUND: Although colonoscopy (CS) is a powerful tool for diagnosis, treatment, and prevention of colorectal disease, several barriers preclude its use and thus limit its clinical effectiveness. These barriers include availability (system capacity), cost, risk, and patient acceptance. One barrier, preparation (prep) for CS, is often cited by patients as the most unpleasant part of CS. Prep quality affects efficacy, efficiency, and cost of CS. From a systems perspective, suboptimal preps lead to canceled procedures, aborted CSs, and scheduling of follow-up CS (for surveillance) sooner than recommended. From the patient perspective, an inadequately prepped colon may result in missed neoplasms and increase the risk of complications. In many settings (including VHA), polyethylene glycol (PEG) is predominantly used to prep for CS despite clinical trials demonstrating that sodium phosphate (NaP) is better tolerated, gives as good or a better quality prep, costs 6-10 times less, and is as safe. Greater use of NaP in clinical practice, however, would require a decision support system (DSS) of some kind to accurately and reliably select patients who could use NaP. OBJECTIVES: (1) To design, test, refine, and implement a computer-based DSS that determines method of prep for patients undergoing CS; (2) To measure the effect of the DSS on systems-specific variables (e.g., CSs canceled or aborted, and surveillance CS scheduled sooner than recommended - all because of the prep); and on patient-specific variables (e.g., prep quality, procedure duration, CS findings, and patient and provider satisfaction). RESEARCH DESIGNS: (1) retrospective and prospective cross-sectional studies; (2) controlled trial with a randomized time sequence; Setting: Indianapolis VAMC POPULATION TO BE STUDIED: Consecutive outpatients who have undergone or who will undergo CS PRINCIPAL DATA SOURCES: (1) Paper and electronic medical records (EMRs), endoscopy and pathology reports, patient

	and endoscopist surveys; METHODS: We will create a computer-based DSS that uses EMRs (test results, medications, diagnoses) and CS indication to select the prep for each patient. After DSS creation, we will review a year's worth (an estimated 1,000 eligible) of CS reports to determine: 1) DSS performance in identifying patients who could take and who should not take NaP; 2) proportions of aborted and early surveillance CSs due to the current (PEG) prep. After DSS refinement, we will test it prospectively on a 6-month sample of (500 eligible) patients having CS (but who prepped in the usual fashion with PEG) to determine patients that could have used NaP instead of PEG and those that should not use NaP. This 6-month sample also will serve to establish baseline systems ("control") parameters for PEG (CSs canceled with the reason, CSs aborted, and early surveillance CS) prior to the intervention phase. For both retrospective and prospective cohorts, a research nurse (RN) will conduct an independent EMR review to determine which patients could and should not use NaP; DSS and RN performance will be compared for accuracy and agreement. After finalizing the DSS, we will conduct a prospective, endoscopist-blinded, controlled trial randomized by month where patient prep is determined using the DSS vs. "usual care" (i.e., PEG prep for all). Patient and endoscopist satisfaction with tolerability and quality of the prep, respectively, will be compared between intervention and control periods, as will the proportions of CSs canceled or aborted, and early-scheduled surveillance procedures. PRINCIPAL ANALYSES: (1) DSS sensitivity, specificity, and accuracy; (2) proportions of CS canceled or aborted due to prep, scheduled for surveillance earlier due to the prep; (3) colonoscopic findings, procedure time, and prep quality; (4) patient and provider satisfaction with the prep. EXPECTED CONTRIBUTION OF THE RESEARCH: This research will produce a DSS that reliably and accurately determines which patients receive which CS prep. This product will result in system improvements in CS efficiency and patient improvements in satisfaction and prep quality, with the prospect of improving CS efficiency for the entire VA health care system. VALUE TO CRC-QUERI STRATEGIC GOALS: Patient adherence with prep procedures has been identified as one key obstacle to the successful completion of a complete diagnostic exam following a positive CRC screen (CRC QUERI Goal I). The decision support system examined in this project addresses this issue by allowing appropriate patients to use a better tolerated prep solution. Relationship of principal investigator/project to CRC QUERI coordinating center: The CRC QUERI has provided extensive consultation on this project and is providing LIP funding to support pilot work requested by grant reviewers (June, 2005). Implementation Research Coordinator Adam Powell will be named as a coinvestigator on the grant resubmission. This project is one of three core projects (see also GIVER and ENS) that investigate different approaches to facilitating complete diagnostic evaluation.
Endoscopy Non-Completion Risk	Empirical Predictors of Endoscopy Non-Completion Kochevar, Laura Core LIP

	OBJECTIVES: To identify predictors of non-completion of GI endoscopy appointments. RESEARCH DESIGN/METHODOLOGY: This study uses analysis of administrative data to identify patient risk factors for endoscopy non-completion. Data are examined for patients between 50 and 80 years of age who were scheduled for at least one GI endoscopy clinic appointment in FY 2002. Variables include: Patient age, gender, estimated distance between home and Minneapolis VAMC, race, eligibility, computed severity, complexity, and comorbidity, number of primary care visits scheduled in FY 2002, the number of primary care visits completed in FY 2002, the number of specialty visits scheduled in FY 2002, the number of specialty visits completed, the number of GI endoscopies scheduled in FY 2002, the number and type of GI endoscopies completed in FY 2002, the season in which the endoscopies where scheduled to occur, appointment proximity to a major holiday, time interval between the scheduling date and the appointment date, and the completion status of the appointment (complete, or non-completion type). Principal components analysis will be used to describe relationships among variables. Multivariate logistic regression will be used to identify predictors of non-completion of appointments and non-completion type. CLINICAL SIGNIFICANCE: While it is clear that incomplete endoscopy appointments add to both the cost and wait times for endoscopies, the degree of impact and the most appropriate intervention strategies are determined by the nature of the non-completion. There are 4 distinct types of non-completion: 1) Patient calls ahead to cancel; 2) The patient does not come to the clinic and does not call ahead; 3) The patient shows up at the clinic and refuses test, or reports that no prep was done, or was otherwise non-compliant with necessary procedures (e.g. ate breakfast); and 4) Patient arrives, is prepped for procedure (sedated, etc.). The exam is initiated and cannot be completed because of inadequate at-home pre-procedure purging. Type 1 and Type 2 non-completions may be addressed by altering scheduling and feedback procedures. Types 3 and 4 cancellations suggest the need for greater patient education and motivation and may also indicate the need for pre-exam reminder calls, intensive coaching, and possibly pre-exam “hot line” availability. Type 4 cancellations also suggest the need for thorough pre-procedure evaluation to determine full compliance with prep. It is not economically feasible to apply all support methods for all patients. If patients who were particularly at-risk for a specific type of clinic cancellation could be identified, the appropriate intervention strategy might be applied only when needed. If the non-completion rate were significantly lowered, the cost savings alone may be sufficient to pay for ongoing supportive intervention. There would also be the additional benefit of increasing the effective endoscopic capacity and decreasing wait times for these procedures. VALUE TO CRC-QUERI STRATEGIC GOALS: By using the predictors identified in this study, we may be able to identify veterans at high risk of endoscopy non-completion. Custom interventions can then be created to improve completion rates among these individuals (CRC QUERI Goal I). This targeted approach is likely to improve both the effectiveness and the cost-efficiency of resultant intervention strategies.
Key Informant	Key Informant Interview Study of CDE Policies and Procedures Kochevar, Laura CRC QUERI LIP The VACO LIP is a diagnostic effort that replaces the QUERI’s original planned SRD key informant interview project. Based on the findings of our previous endoscopic capacity and throughput study (Endo 1) we have identified highly efficient “best practice” Complete Diagnostic Evaluation (CDE) facilities and poorly performing CDE facilities. Key informants representing

	primary care providers, GI providers and GI nursing and clinic staff are being interviewed to uncover clinic processes related to best practice and barriers to best practice. VALUE TO CRC-QUERI STRATEGIC GOALS: By comparing perceptions between staff at effective and ineffective CDE facilities we hope to identify key system, patient and provider barrier affecting adherence to CDE best practices. Results may lead to interventions designed to improve the incidence and timeliness of CDE at the VA (CRC QUERI Goal I). This project also strengthens the relationship between the QUERI and clinicians and clinic managers.
CRC SAFE	CRS 02-162 Colorectal Cancer Screening Assessment and Surveillance Data System Kochevar, Laura NCI Recent data from the VA Office of Quality and Performance suggest that, on average, 40% of VA patients fail to receive timely CRC screening, and little is known about compliance with CRC follow-up recommendations. Significant improvements in screening and follow-up rates can only be achieved with thorough knowledge of variations in recommended CRC screening and follow-up practice. The features and functionality necessary to consistently and effectively track the colorectal cancer screening and follow-up activities of all eligible veteran VHA users for assurance purposes are not currently present in the extensive VA data systems. Hence, a new, centralized colorectal cancer screening and follow-up data system is needed that will facilitate access to relevant data from multiple sources, while at the same time establishing and maintaining data quality, integrity, and security. We propose to build a centralized CRC screening assessment and surveillance system which will compliment other VA national data sets by providing: (1) an infrastructure for facility-level CRC surveillance and quality assurance programs, and (2) a larger sample for assessing CRC practices in special patient populations, and for care tracking screening complications and other rare outcomes. The information in this data system will be supplemented with Medicare and chart review data for validation purposes. OBJECTIVES. The long term goal of this project is to develop and implement a valid and efficient national Veterans Affairs (VA) data system that can be used to: (1) assess and monitor adherence to recommended colorectal cancer (CRC) screening and follow-up practices and their outcomes in the VA, (2) inform and facilitate interventions to improve CRC screening and follow-up practices, and (3) evaluate specific improvement strategies. The immediate objectives are to: (1) develop a data system prototype, using a sample of VA facilities, (2) develop and validate operational definitions of recommended screening and follow-up practices using VA and Medicare data, and (3) develop a functional approach for obtaining, linking and managing the components of this data system on a national scale. Rather than testing specific research hypotheses, this project will seek to develop and implement a CRC screening and surveillance system that can be used to estimate: (1) CRC screening and follow-up rates, (2) variation in screening and follow-up rates by organizational and patient characteristics, (3) the reliability and validity of combined VA and Medicare administrative databases for assessing and tracking recommended CRC screening and follow-up practices, and (4) the impact of Medicare service coverage on the screening and follow-up rates of VA users. SIGNIFICANCE. The development of such a screening and surveillance system will facilitate data linkages, analyses, complex ad hoc queries, graphical depiction of data relationships, and other reporting functions. The potential uses and

	benefits that such a surveillance system would provide the VA are manifold and include: an increased ability to quickly gather national datasets for examination of issues related to CRC screening and follow up care; a centralized data system for monitoring and evaluating aspects of the quality CRC screening and follow-up services provided by the VA's health care system; and a centralized data collection system for rapidly assessing and evaluating the impact of specific CRC screening and follow-up improvement projects. VALUE TO CRC-QUERI STRATEGIC GOALS: The data system resulting from this project will provide a foundation for future CRC screening (CRC QUERI Goal II)and follow-up (CRC QUERI Goals I & III) quality improvement efforts and can be used to: (1) assess national and local adherence to recommended CRC screening and follow-up practices on an annual basis, (2) identify gaps in recommended practices, (3) facilitate evaluation of strategies for reducing these gaps, and (4) trigger computerized notification and prompting strategies for enhancing compliance with recommended CRC practices. The final report summarizing adherence to recommended CRC screening and follow-up practices, variation in adherence by patient and facility level characteristics, and areas of greatest need for the sample of VA facilities used to develop the data system will provide a prototype for national reporting by the CRC QUERI.
C4 (CRC SAFE II)	Colorectal Cancer Care Collaborative Kochevar, Laura VACO LIP GOAL: The purpose of the C4 learning collaborative is to improve the quality of care delivered to patients with a positive colon cancer screening test or with symptoms suggestive of colorectal cancer through system redesign. The goals, as reflected in process measures, are to decrease delays from symptom presentation or positive screening test to complete diagnostic evaluation and to increase use of guideline-based treatment. Effective materials and methods developed during this project will be shared with all VAMCs. The C4 Advisory Committee, with members appointed by DUSHOM, Patient Care Services, HSR&D, OQP, the Office of information and the Office of Nursing Services, will ensure that the learning collaborative activities are consistent with VHA values and priorities and will assure organizational support necessary for sustainable change. VALUE TO CRC-QUERI STRATEGIC GOALS: Phase I of this large-scale project utilizes a collaborative approach to foster facility level process improvement in the areas of CRC diagnostic evaluation (CRC QUERI Goal I) and CRC care (CRC QUERI Goal III). The process measurement systems developed through this project will provide a template for other facilities interested in identifying and addressing problems in the flow of patients from positive CRC screening to diagnostic evaluation to appropriate care. C4 will also serve as a "warehouse" of strategies and VA success stories that should allow other facilities to benefit from the learning of those involved in the pilot project. The project builds significant partnerships with a broad range of VA partners.
GIVER (Telehealth)	Home Telehealth Reminders to improve Colonoscopic Prep and Reduce No-show

	Kochevar, Laura VA HSR&D BACKGROUND. Low endoscopy completion rates are a major problem in the VA, causing delay or failure to receive essential care, increased clinic wait times, lost capacity, increased costs, and limiting endoscopic screening for colorectal cancer. This study tests Interactive Voice Response (IVR) messaging to improve colonoscopy and flexible sigmoidoscopy completion rates by 1) facilitating scheduling and 2) enhancing patient adherence. While previous studies have examined the role of scheduling facilitation or patient adherence in endoscopy completion or the use of IVR technology to enhance patient adherence in other medical contexts, this is the first study to evaluate use of IVR for both scheduling and patient adherence for endoscopy completion. OBJECTIVES. 1) To test the effectiveness of IVR messaging at scheduling and proximal to the appointment for improving endoscopy completion rates. 2) To test the effectiveness of IVR messaging at time of scheduling for increasing the percent of cancellations that occur > 21 days prior to the appointment, allowing the clinic to reuse clinic slots. 3) To achieve the QUERI goals of rapid and systematic implementation of evidence-based practices by imbedding an intervention RCT within an implementation program development effort. METHODS. We will use a three-arm randomized trial: (1) Scheduling plus Reminder (SR), uses the IVR system at scheduling to inform veterans of their scheduled endoscopy appointment, stress its importance, and facilitate early rescheduling or cancellations when necessary. The IVR system is used again approximately two days before the endoscopy appointment to remind the veteran of what he or she needs to do prior to the appointment (colon prep, fasting, etc.). (2) Scheduling plus Reminder, Education, and Motivation (SREM), adds access to educational and motivational messages to the SR intervention. These educational and motivational messages, adapted from the successful print intervention of Wardle et al (2003), instruct veterans in how to prepare for the appointment, stresses the importance of preparation and that the veteran can do what is needed. (3) Usual care (UC) consists of a mailed scheduling notification letter and a generic automated pre-appointment reminder call that tells the veteran that he or she has an appointment at the VAMC, but does not explain the purpose of the visit or what the veteran must do prior to the appointment. The principal outcome measures will be (1) percent of appointments completed and (2) percent of cancellations or requests to reschedule appointments that occur more than 21 days prior to the appointment date. Periodic structured interviews, focus groups, and analysis of IVR process trace data (number of attempted calls, completed calls, time on call, etc.) will be used for formative and process evaluation. VALUE TO CRC-QUERI STRATEGIC GOALS: The intervention will directly affect colorectal cancer screening rates (CRC-QUERI Goal II) and the complete diagnostic evaluation of positive colorectal cancer screening results (CRC-QUERI Goal I) This study is the first to test the combined effects of scheduling notification, appointment reminders, and educational and motivational messages on endoscopic completion. The study extends the use of an established technology (IVR) to deliver evidence-based, theory-driven interventions to a well-documented clinical performance gap. The methodology employed also reflects CRC-QUERI's implementation orientation. Imbedding the randomized trial within a quality improvement program development effort facilitates rapid dissemination and makes an important contribution to implementation research methodology. The focus on a single development site speeds the development process, while inclusion of consulting experts

	from diverse partner sites facilitates development of a flexible, readily tailored intervention program.
SCREEN (Vet Survey)	Assessing and Addressing Patient Colorectal Cancer Screening Barriers Partin, Melissa VA HSR&D BACKGROUND. Despite strong evidence for the effectiveness and cost-effectiveness of a variety of colorectal cancer (CRC) screening methods for reducing CRC mortality, current CRC screening rates fall far below the levels needed to significantly impact CRC mortality. Unfortunately, however, the existing literature on patient CRC screening behavior does not yet provide a sufficient evidence base for making sound recommendations regarding how to most effectively improve upon these rates in the VA. This study will inform future CRC screening promotion efforts and make important scientific contributions to existing literature by: (a) delineating the relative contribution of patient cognitive, environmental and background factors to CRC screening behavior using a multi-level, theory driven analysis approach on a nationally representative sample, and (b) identifying the determinants of variation in CRC screening behavior across vulnerable population subgroups. OBJECTIVES. The overall goal of this study is to address significant gaps in the existing evidence base in order to inform the development of effective patient-directed interventions to increase CRC screening among veterans age 50 and older. This will be accomplished by using data collected from a mailed patient survey and theory-based analysis approaches to uncover key barriers to screening adherence and to identify fruitful intervention approaches for modifying them. The specific primary objectives of this study are to: (1) Estimate the relative effect of patient cognitive (knowledge, attitudes, and self-efficacy), environmental (social network and medical care characteristics), and background (demographics, health status, prior screening experiences) factors on CRC screening behavior (2) Identify factors that contribute to any disparities in CRC screening behavior by race/ethnicity or other patient characteristics (3) Identify from these analyses: (a) priority population subgroups to target in future interventions (i.e., those at the greatest risk of failing to be screened), and (b) priority factors to target in future interventions (i.e., those that are not only strongly associated with CRC screening but also prevalent in the target population and amenable to intervention, as well as those that are most likely to ameliorate race and other disparities). Secondary objectives include: (1) assessing patient values and preferences regarding the various CRC screening modality options, (2) estimating stage of readiness to adopt CRC screening in the study population, and (3) validating measures of CRC knowledge and self-reported screening behavior. METHODS. This is an observational study based on a nationally representative, cross-sectional mailed survey of 3480 male and female veterans age 50-75 who have had one or more primary care visits at a VA Medical facility in the past two years. The survey sample will be drawn using a two stage procedure where we first randomly select 24 VA facilities stratified by

	size and racial mix and then select a simple random sample of 145 eligible veterans from each sampled facility. The mailed patient questionnaire, made up primarily of previously validated measures, will include measures of self-reported CRC screening behavior; patient demographic, health, social network and medical care characteristics; CRC screening knowledge, attitudes, social norms and self-efficacy; and attitudes toward medical care. Additional measures of organizational-level CRC screening practices from a recently completed VA facility survey will be linked to the patient survey. The primary outcome is whether the patient is currently compliant with CRC screening guidelines (i.e., received either a fecal occult blood test in the past year, a sigmoidoscopy or double contrast barium enema in the past five years, or a colonoscopy in the past ten years). The primary analyses will test (using logistic regression and a multi-level, structural equation modeling approach) specific hypotheses about the association between this measure and patient background, cognitive and environmental factors and their interactions. Additional analyses to be conducted include a multinomial logistic regression to assess patient screening mode preferences and their determinants, and logistic and multinomial logistics regression analyses with interactions to determine whether and why any observed patterns in CRC screening behavior vary by race. VALUE TO CRC-QUERI STRATEGIC GOALS: The proposed study will be the first to use a multi-level, theory-driven analysis approach to inform the development of a screening promotion intervention. The products anticipated from this study (recommendations regarding the most fruitful patient and system directed strategies for promoting CRC screening in the VA, recommendations for developing culturally competent and sensitive CRC screening promotion strategies, and validated measures of CRC screening behavior and knowledge) will greatly facilitate future efforts to monitor and improve CRC screening rates in the VA (CRC-QUERI Goal II).
CanCORS	CRS 02-164 Colorectal Cancer Care Outcomes Research and Quality Surveillance Data System (CanCORS) Provenzale, Dawn & van Ryn, Michelle NCI/HSR&D OBJECTIVES: The Cancer Care Outcomes Research and Surveillance (CanCORS) Consortium is a collaboration of seven teams of investigators from around the United States, and is funded by the National Cancer Institute (6 teams) and VA Research Service (this team: Morrison, van Ryn, Provenzale) to evaluate the quality of cancer care in this country. The goal of the CanCORS Consortium is to examine the care delivered to population-based cohorts of newly diagnosed patients with lung and colorectal cancer in multiple regions of the country and to assess outcomes associated with that care. Where possible, the consortium will examine the degree to which those differences in care are associated with differences in outcomes. The study will be presented to potential participants under the name VA CanCORS-Share Thoughts on Care. The primary objectives of VA CanCORS-Share Thoughts on Care will be to examine the influence of the characteristics and beliefs of colorectal cancer patients and providers, as well as the characteristics of systems of organizations delivering care, on the treatment and outcomes of cancer patients from diagnosis to recovery or death. The secondary objectives will be to evaluate the effects of a select group of common and specific processes of care on clinical outcomes. RESEARCH PLAN: Each of the 7 Primary Data Collection and Research (PDCR) sites will identify cohorts of approximately 1000 patients with colorectal or lung cancer and will collect data about their care in the 15 months following diagnosis. The VA team will focus on colorectal cancer only. Primary data will be collected from 3 sources: patient surveys, medical

records, and surveys of health care providers. These data will be supplemented with cancer registry data and publicly available data sets.

CLINICAL SIGNIFICANCE: The CanCORS Consortium, including VA CanCORS-Share Thoughts on Care, provides a unique opportunity to examine care for lung and colorectal cancer patients in community settings in multiple regions of the United States, to identify variations in care, and to begin to understand the reasons for these variations. By collecting and analyzing data from a large number of patients in geographically diverse settings and care systems, we expect that the findings of this study will help clinicians and policy-makers improve cancer care and the experiences of cancer patients.

Current CanCORs Projects:

Diagnostic Delay in Colorectal Cancer
Fisher, Deborah & Provenzale, Dawn

Analysis of the "Colorectal Cancer: Risk Factors for Advanced Disease" (CCRFAD) (Provenzale PI) data set provided estimates of patient delay: time from symptoms to first medical encounter and system delay: time from first medical encounter to diagnosis of colorectal cancer (CRC). The data set also provided details of the patients' reasons for delaying the initial medical encounter. This data set, however, lacked the necessary details to characterize the environmental factors leading to system delay such as referral patterns to subspecialists (provider-level) or wait time for procedures (system level). The data set also lacked any information about patient behavior after the initial medical consultation, such as failure to appear for procedures or clinic appointments. These variables are being collected in my study of asymptomatic patients with a positive screening fecal occult blood test. This ancillary study will collect complementary data for symptomatic patients enrolled in VA CanCORS and 4 additional PDCRs (CRN, Harvard Medical School – Northern California, UAB, and Rand/UCLA.) chosen because of the interest of the PDCR Principal Investigators and the opportunity to compare diagnostic delay in a variety of healthcare settings.

HYPOTHESIS: We hypothesize that failure for appropriate subspecialty referral, patient failure to adhere to appointments, and long wait times for procedures will account for the delay in diagnosis of CRC. While the delay in diagnosis may or may not be long enough relative to the natural history of the disease to impact mortality or stage (strongly associated with mortality), inappropriate or inefficient diagnostic evaluations could lengthen patient uncertainty, prolong patient symptoms, lead to unnecessary procedures or clinic visits, and increase costs.

METHODS: The 11 VA sites of VA CanCORS will enroll a total of 1000 patients aged 21 or older with CRC who are receiving services at one of the participating VA Medical Centers. Based on the CCRFAD data, approximately 70% of the patients will have had at least one of the following symptoms: blood in stool, lower abdominal pain, constipation, change in stool type, diarrhea, nausea/vomiting, unexplained weight loss, or anorexia prior to their diagnosis of CRC. The additional PDCRs will also enroll approximately 1000 patients and we assume that a similar proportion will have had one of the above symptoms. These symptomatic patients will comprise the study sample for the diagnostic delay substudy. Age, race, date of diagnosis, and stage at presentation are already included in the CanCORS data abstraction protocol. The abstraction will begin 6 months prior to diagnosis. The following elements

will be added to the medical record data abstraction protocol:

1) Date of first medical visit where symptom is reported.
2) Plan for evaluation of symptoms: observation, diagnostic tests, subspecialist consult
3) Date and results of tests including: labwork, imaging studies, Endoscopy
4) Date and results of relevant subspecialist consults: GI, surgery
5) Patient cancellation, or failure to show for any test, procedure, consult appointment
6) Clinic cancellation of an any test, procedure, consult appointment

No changes will be made to the patient survey instrument.

ANALYSIS: Cox's proportional hazard regression will be used to determine the impact of independent variables on the primary outcome, time from first medical consultation for a symptom to cancer diagnosis. The analysis will determine whether length of delay differs by factors such as healthcare setting, facility site, race, socioeconomic status, education, stage of disease, patient compliance, and subspecialty referral. Hazard ratios and 95% confidence intervals will be computed.

CLINICAL SIGNIFICANCE: Early detection and prevention of CRC depends on the system-level coordination of subspecialty clinics such as gastroenterology, radiology, and surgery to provide care in a timely manner; on provider adherence to screening and surveillance guidelines; and on patient compliance with tests or procedures recommended by their healthcare providers. Barriers at any of these levels, system, provider, or patient, will affect the process of care leading to diagnostic delay and worsened outcomes including prolonged symptoms, unnecessary procedures or clinic visits, increase costs and potentially presentation at a later and less curable stage of disease.

Quality and Cost of Colon Cancer Care in VA and Medicare
Hynes, Denise; Provenzale, Dawn

BACKGROUND: Cancers of the colon are the third most commonly diagnosed cancers and rank third among cancer deaths in the United States (Cancer Facts and Figures, 2002). In 2002, there were an estimated 107,300 new cases in the United States and 48,100 deaths attributable to the disease. While it is well documented that initial surgery and adjuvant therapy are key to disease-free and long-term survival in colon cancer, variations in care exist. Patients using more than one health care system are particularly vulnerable, because coordination of care across systems of care may be lacking resulting in delays in care and excessive health care use and costs.

OBJECTIVE: This study will identify and compare the extent to which variations in treatment, health care use and costs for colon cancer patients exist in the two largest health care providers networks in the United States: Medicare and Veterans Health Administration. Comparisons will focus on patients treated exclusively in each system and those treated by providers in both systems from 1999-2004.

SPECIFIC AIMS: 1. Assess and compare the structure and process of colon cancer initial surgical and adjuvant treatment patterns for elderly patients across systems of care. 2. Characterize and compare health care use and

costs for colon cancer care across systems of care. 3. Examine factors that explain health system choice, delays in colon cancer initial surgical and adjuvant treatment, health care use, and costs across systems of care.

STUDY DESIGN: The study design will be a retrospective cohort. Based on a quality of care theoretical model, this study will be the first to link multiple comprehensive data sources across the VA and Medicare systems and use well-validated approaches to characterize, compare and examine patient demographic characteristics, cancer clinical characteristics, comorbidity, functional status, timing and type of cancer surgery and timing and type of adjuvant therapy, health care use and costs. Information about the specific institutional provider site and geographic region will also be included in the analyses. Calendar years 1999-2004 will comprise the study period. We will focus on treatment, health care use and costs for a three year period from diagnosis for each patient.

CLINICAL SIGNIFICANCE: This study is timely and policy relevant on several fronts. The study addresses a key area highlighted by the NCI's plans and priorities for cancer research, which noted that too many patients face financial and other barriers to obtaining appropriate and timely care. Furthermore, the proposed study fills an important void, as the General Accounting Office is currently being requested by the U.S. Senate to review studies of the patterns and costs of colorectal cancer care conducted by the NCI and ASCO, which lack information about veterans specifically. Finally, with renewed interest in Medicare and VA sharing arrangements, in which the CMS would pay for some care provided in the VA (H.R. 4939,US Medicine, August, 2002), a better understanding of the dynamics of care for specific disease populations of national concern are warranted.

Development of a Data Monitoring System to Measure the Quality of Lung and Colorectal Cancer Care
Provenzale, Dawn

BACKGROUND: With ongoing GPRA oncology review, identification and closure of the gaps in the diagnosis and treatment of cancers has become a priority to VHA. This application proposes a partnership with the Office of Quality Performance (OQP) to develop a cancer care quality monitoring system for ongoing use by the OQP, identify key implementation issues and assess facility use of monitoring data.

Lung and colorectal cancer are the two major causes of cancer deaths among veterans. In 2003 there were 11,054 cases of lung and 6,531 cases of colorectal cancer reported in the VA central cancer registry. Nearly all patients with lung cancer will succumb to the disease while approximately half of colorectal cancer patients will die from this cancer. Thus, quality of cancer care becomes critical in efforts to reduce morbidity and mortality from these cancers.

In 2003, HSR&D funded the VA CanCORS initiative, a QUERI project (CRS-02-164), to evaluate the quality of lung and colorectal cancer care in 13 geographically diverse VAMC's. The methods include baseline and one year patient interviews (telephone administered), a provider survey and a medical record review. VA CanCORS is part of the national Cancer Care Outcomes Research and Surveillance (CanCORS) Consortium, an NCI/VA funded collaboration of seven teams of investigators (Harvard Medical School, University of North Carolina, University of Alabama at Birmingham, University of Iowa, RAND Corporation, Dana-Farber Cancer Institute, Department of Veterans Affairs) from around the United States. The goal of the CanCORS Consortium is to examine the care delivered to population-based cohorts of newly diagnosed patients with lung and colorectal cancer in multiple

	regions of the country and to assess outcomes associated with that care. VA CanCORS will identify gaps in VA care compared to established guidelines. The results of study will be compared to outcomes at non –VA sites to provide critical information to VHA on how care for these cancers compares to cancer care nationally. In 2004, the Office of the VA Secretary for the Department of Veterans Affairs, in response to a Congressional Mandate, contracted with ABT Inc. to measure quality of cancer care in the VA compared to non-VA settings, to report on deviations from standards of care and describe variations in quality of cancer care in the VA system. Lung and colorectal cancer are two of the major cancers under evaluation. Thus, the quality of care for lung and colorectal cancer has become a priority to VHA. This proposal will build on the infrastructure of the ongoing CanCORS project to provide VHA with a colorectal cancer care monitoring system that can ultimately be administered by the Office of Quality Performance. A companion project will demonstrate the use of this monitoring system in approximately 20 volunteer VA Facilities. OBJECTIVES: 1) Development of the monitoring system in conjunction with the Office of Quality Performance 2) Assess implementation issues that will affect the ability of the operations partner, OQP to continue to use the system and 3) Assess facility utilization of performance feedback METHODS: While existing CanCORS infrastructure will be used to facilitate data collection, we will work with OQP to refine the data collection tools to be usable within an internal VHA performance monitoring context: 1) A case ascertainment and eligibility protocol will be developed so that OQP personnel with access to Vista Web can collect the required data for future performance monitoring. 2) Patient survey protocols from CanCORS will be adapted to use by OQP personnel. The survey protocols support both telephone interview and paper and pencil mail administration. 3) A provider survey protocol will be adapted for OQP use. This protocol includes identification of relevant providers as well as the survey tool and analysis plan. The provider survey is a series of vignettes describing hypothetical patients with lung and colorectal cancer and is not based on care given to a specific patient. Qualitative formative evaluation data regarding barriers to implementation of the monitoring system by OQP will be collected throughout the design process and used to modify the performance monitoring protocols. Following the companion demonstration project we will debrief participating facilities on their use of the performance data. PRODUCTS: 1) Performance monitoring system including implementation guide, case ascertainment and survey protocols and analysis plan. 2) Report on implementation barriers and design adjustments to facilitate usability of the

performance monitoring system. 3) Report on facility utilization of performance feedback.

Lung and Colorectal Cancer Care – A Quality Measurement Partnership
Provenzale, Dawn

BACKGROUND: With ongoing GPRA oncology review, identification and closure of the gaps in the diagnosis and treatment of cancers has become a priority to VHA. This application proposes a partnership with the Office of Quality Performance to demonstrate a system for the measurement of cancer care quality in VHA.

Lung and colorectal cancer are the two major causes of cancer deaths among veterans. In 2003 there were 11,054 cases of lung and 6,531 cases of colorectal cancer reported in the VA central cancer registry. Nearly all patients with lung cancer will succumb to the disease while approximately half of colorectal cancer patients will die from this cancer. Thus, quality of cancer care becomes critical in efforts to reduce morbidity and mortality from these cancers.

In 2003, HSR&D funded the VA CanCORS initiative, a QUERI project (CRS-02-164), to evaluate the quality of lung and colorectal cancer care in 13 geographically diverse VAMC's. The methods include baseline and one year patient interviews (telephone administered), a provider survey and a medical record review. VA CanCORS is part of the national Cancer Care Outcomes Research and Surveillance (CanCORS) Consortium, an NCI/VA funded collaboration of seven teams of investigators (Harvard Medical School, University of North Carolina, University of Alabama at Birmingham, University of Iowa, RAND Corporation, Dana-Farber Cancer Institute, Department of Veterans Affairs) from around the United States. The goal of the CanCORS Consortium is to examine the care delivered to population-based cohorts of newly diagnosed patients with lung and colorectal cancer in multiple regions of the country and to assess outcomes associated with that care. VA CanCORS will identify gaps in VA care compared to established guidelines. The results of study will be compared to outcomes at non –VA sites to provide critical information to VHA on how care for these cancers compares to cancer care nationally.

In 2004, the Office of the VA Secretary for the Department of Veterans Affairs, in response to a Congressional Mandate, contracted with ABT Inc. to measure quality of cancer care in the VA compared to non-VA settings, to report on deviations from standards of care and describe variations in quality of cancer care in the VA system. Lung and colorectal cancer are two of the major cancers under evaluation.

Thus, the quality of care for lung and colorectal cancer has become a priority to VHA.

This proposal will build on the infrastructure of the ongoing CanCORS project to provide VHA with a data set of veteran centric measures of quality of lung and colorectal cancer care.

OBJECTIVES: To use the infrastructure of VA CanCORs and partner with the office of Quality Performance to provide data on the quality of lung and colorectal cancer, identifying gaps in care and deviations from standards of care, in anticipation of the GPRA oncology review. Once these gaps and deviations are identified, interventions can be developed to close any identified gaps and to reduce any variation from established guidelines.

	METHODS: Our Office of Quality Performance partners will solicit volunteers for this quality measurement initiative at the upcoming QMIC meeting on April 6. We anticipate that at least 20 facilities will volunteer for this project. We will use the infrastructure of the existing CanCORS study to accomplish the objectives. As a quality improvement project, we will gain access to CPRS at the participating sites in order to completely and rapidly ascertain, and determine eligibility of newly diagnosed lung and colorectal cancer patients. Ascertainment and eligibility will be determined by a research assistant in Durham using CPRS at the participating sites. Medical records will be abstracted centrally in Durham using Vista Web. Using our established infrastructure for the ongoing CanCORS project, patients will be contacted from the Survey Research Center at the University of Minnesota and invited to participate in a telephone interview that evaluates their experience and satisfaction with care. For those who may be reluctant to perform a telephone interview, we will offer the option of a self administered mailed survey, as well. Providers will be identified through a review of the medical record and a mailed survey will be sent to them. The provider survey is a series of vignettes describing hypothetical patients with lung and colorectal cancer and is not based on care given to a specific patient. Data will be collected from April 1, 2005 forward to examine colorectal and lung cancer quality of care. We anticipate that this first wave of patient identification will extend to December 2005, with patient surveys to be completed first, followed by medical record and database extraction and provider surveys. FACILITIES: For facilities that participate in the CanCORS study, feedback will not be provided until the ascertainment and medical record follow up period for the study is completed. Facilities will complete a checklist providing information on numbers of critical staff such as oncologists, radiation oncologists, and colorectal, general and thoracic surgeons. In addition, information about the availability of radiation therapy on site, contractual agreements for offsite radiation therapy and oncology care, and other key elements to explain patterns of care will be provided. This composite of medical record review, patient and provider survey will provide a rich dataset, that will enable VHA to identify patient provider and facility level gaps in care, the first step in developing interventions to improve cancer care for veterans. PRODUCTS: 1) Report to facilities and OQP on findings. The report will be site specific. The specific elements of the report are given in Appendix 1. 2) A composite dataset of medical record review, patient and provider survey data. This will provide a rich dataset for the Office of Quality Performance that will enable VHA to identify patient, provider and facility level gaps in care, the first step in developing interventions to improve cancer care for veterans. In addition, the results of this effort will provide added value to VHA in that it is veteran centric containing information about patient quality of life and satisfaction with care, and data on provider patterns of care, elements that are not captured in the GPRA review. Furthermore, we anticipate that these cancer care elements can serve as a prototype that can be enhanced to monitor and evaluate cancer care for all malignancies. VALUE TO CRC QUERI STRATEGIC GOALS: This work will help to identify best practices in the treatment and surveillance of colorectal cancer (CRC QUERI Goal III) by assessing relationships between care practices and CRC outcomes. Once relationships are found, this data may also provide insight into the root causes of poor care. This work also provides CRC

	QUERI an opportunity to develop relationships with consortium members (RAND, Harvard Medical School, University of Alabama Birmingham, Dana-Farber Cancer Institute, University of North Carolina, and University of Iowa) and may provide us with important insights into the successful management of implementation projects that involve a large number of geographically and functionally diverse stakeholders.
CRC Decision Tool	Testing a Decision Aid about Colorectal Cancer Screening: A Pilot Project Provenzale, Dawn & Pignone, Michael BACKGROUND: Improving the screening of patients for colorectal cancer is a priority for VHA. Colorectal cancer (CRC) is the third most common cancer diagnosed and the second leading cause of cancer deaths in the US. In 2003, an estimated 147,500 people will be diagnosed and 57,100 will die from CRC. Screening has been shown to reduce disease-specific mortality and is widely recommended by major organizations. The VHA Performance Measure target of 65% for FY 2003 indicates that substantial room for improvement exists. One means of increasing patient acceptance of screening recommendations is through use of a patient-directed decision aid to assist patients in making a decision about screening. OBJECTIVE: We propose to pilot-test the usability of a previously developed video-based patient-directed decision aid about CRC screening with fecal occult blood testing (FOBT) and/or flexible sigmoidoscopy (FS) and the feasibility of its use in primary care clinics in the Durham VAMC. DESIGN AND STUDY POPULATION: The study will be a pilot project using a non-randomized convenience sample of 200 patients. Eligible patients will be those who are: age 50 to 75 who are at average risk for CRC, of sufficient general health to be potential candidates for screening, and who are due for screening (i.e. have not had FOBT testing within the past 1 year, an FS within the past 5 years, a barium enema within the past 5 years or a colonoscopy within the past 10 years, whether or not for screening). Average risk will be defined as those adults with no personal history of CRC or adenomatous polyps, no known history of CRC or adenomatous polyps in a first-degree relative, and no known history of inflammatory bowel disease. Patients with the following conditions will be considered not to be of sufficient general health to participate: severe dementia, chronic obstructive pulmonary disease requiring continuous oxygen therapy, severe heart failure (NYHA Class III or IV), severe coronary artery disease, currently undergoing treatment for cancer or history of metastatic cancer, cirrhosis, known active upper or lower gastrointestinal bleeding, unintentional weight loss of greater than 10% within 6 months, blindness, uncorrectable hearing impairment, and any other condition determined by the research assistant (RA) or providers to preclude participation. Patients who are unable to communicate effectively in English will also be excluded. OUTCOMES: The main outcomes of this pilot project are patient-related: change in knowledge score from before to after the decision aid; change in interest in screening score; and change in intent to ask provider about screening score. A secondary outcome is the percentage of patients who had CRC screening discussed and/or ordered at their visits. Given the small size of the study, only frequency statistics will be calculated. IMPLICATIONS: If the CRC screening decision aid is determined to be useful in improving patients' knowledge of, interest in, and intent to discuss CRC screening with their providers and if it is found to be feasible for use in primary care clinics within VAMCs, the next step would be to test it in a larger number of facilities with a larger number of patients and to follow them longer to see if the decision aid increases rates of screening. The investigators would submit a proposal for funding to

	a federal funding agency for the larger trial. VALUE TO CRC QUERI STRATEGIC GOALS: Eventually, if shown to be effective, the decision aid could be incorporated into the new My HealtheVet web portal, allowing for access to it by anyone using the website. This could result in increased screening rates across the VA system (CRC QUERI Goal II).

Non-Core Projects

Provider Attitudes	CCDOR Provider Providers' perceptions of disparities and intervention approaches Burgess, Diana & van Ryn, Michelle CCDOR (HSR&D)LIP OBJECTIVES: To conduct formative research on providers' perceptions, attitudes and beliefs about ethnic and racial healthcare disparities, which will inform subsequent quantitative research testing a social-cognitive model of the provider contribution to disparities. PROTOCOL: Fifty providers will be recruited from the list of providers (physicians, nurse practitioners, physician assistants, RN's) in surgery (cardiothoracic, vascular), cardiology, and urgent care at the Minneapolis VAMC. Providers will be sent a letter in which they will be invited to participate in an interview sponsored by CCDOR to get their perspective on some of the challenges facing the healthcare field. Following this letter, they will be contacted directly by phone or in person to schedule a time to obtain informed consent and complete the ½ hour interview. An experienced interviewer will conduct semi-structured interviews (which will be tape-recorded), using an interview guide developed by the project investigators and pilot tested on VAMC providers. Questions will focus on providers' knowledge and beliefs about the existence and cause of disparities in the VAMC, and their attitudes toward hypothetical intervention strategies. At the end of the interviews, participants will have the opportunity to discuss their interview experience with the

	interviewer, and if interested will be given resources for more information on disparities. CLINICAL SIGNIFICANCE: Reducing racial and ethnic healthcare disparities, which may be defined as unjustified differences in use of health care services across racial and ethnic groups, is a priority area for VA HSR&D. Although there are multiple causes of disparities, there is evidence that providers play a significant role; hence, changing provider behavior is arguably an important component of any efforts to reduce disparities. Decades of research in social psychology provide interventions for reducing discrimination that have the potential to be applied to the healthcare setting. However, before these interventions can be applied, it is necessary to understand more about providers' perceptions, beliefs, and attitudes about the topic. For example, research on prejudice reduction among college students has found that one's beliefs about the existence of racial prejudice are one predictor of discriminatory behavior. Yet, we know little about providers' beliefs about racial/ethnic prejudice and discrimination in the healthcare setting. The proposed provider interview study will provide formative research that will be used as the basis for future quantitative studies, applying social-psychological strategies for reducing prejudice and discrimination to the domain of provider-driven healthcare disparities VALUE TO CRC-QUERI STRATEGIC GOALS: Minorities have higher rates of colon cancer mortality than other groups. One reason for this may be differential treatment by healthcare providers. This study attempts to understand provider contributions to racial and ethnic disparities through the lens of a theoretically grounded social-cognitive model. Findings from this project may lead to specific interventions designed to improve CRC screening and care among minority veterans.
Elder Care Gaps	CA89544 Colorectal Cancer Care Variation in Vulnerable Elderly Dominitz, Jason NCI Using data from the 1991-1998 linked Medicare claims and Surveillance, Epidemiology, and End Result (SEER) Program data, this study will determine the extent to which initial colon cancer treatment and continuing cancer care of the elderly living in rural areas of varying size and remoteness diverges that of the elderly living in urban areas, then will measure the impact of variation in continuing colon cancer care on survival. Because of differences in management of colon cancer at different stages, initial treatment and continuing care will be examined separately by cancer stage. VALUE TO CRC QUERI STRATEGIC GOALS: This study will allow us to determine the extent to which population density affects colon cancer care at each cancer stage. If disparities exist, this research may suggest targeted interventions to specific communities and cancer stages. (CRC QUERI Goal III).
Patient/Provider Ed	RO1 CA86424-01A2 Health Belief Model-Directed Intervention For Colorectal Cancer Screening Ferreira, M. Rosario (Co-investigator) (Bennett, Charles – PI) NIH The primary objective of this study is to assess patient factors that affect access to and compliance with colorectal screening procedures in a defined primary care setting and to develop intervention measures to assure that all patients are making

	informed decisions regarding this important process. The project will evaluate the effectiveness of two intervention programs, specifically designed for low literacy patients, in general medicine clinics in one Veterans Affairs Medical Center. The first program targets primary care providers and second targets patients (mindful of the range of literacy levels in this setting) and compares each of these to current educational standard. VALUE TO CRC QUERI STRATEGIC GOALS: Low-literacy individuals are often poorly served by current healthcare systems and the most difficult to influence through interventions. This project attempts to improve on the number of low-literacy veterans that successfully complete CRC screening (CRC QUERI Goal II) by evaluating targeted interventions for low-literacy patients and the clinicians that care for them. This work will provide insight into the relative effectiveness of patient-centered CRC screening interventions versus interventions directed at health care providers.
Literacy & Race Barriers	IIR 02-010 The Impact of Health Literacy on Racial Differences in Cancer Stage at Presentation Ferreira, M. Rosario (Co-investigator); (Arozullah, Ahsan – PI) VA HSR&D OBJECTIVES: Eliminating racial disparities in health outcomes have become a national priority. Previous studies found that African American males have higher mortality rates for prostate, colorectal, and lung cancer compared to whites. These three cancers are also the leading causes of cancer mortality for men in the United States. However, it is not clear how racial differences in health literacy, screening test utilization, and/or delays in obtaining care contribute to racial differences in advanced stage presentation. The purpose of this study is to determine if racial differences in the rate of advanced stage presentation for prostate, colorectal, and lung cancer can be explained by differences in health literacy, use of screening tests, or both. METHODS: We plan to conduct a cross-sectional survey and health literacy assessment for African-American and white patients with newly diagnosed prostate, colorectal, and lung cancer. Study participants will be recruited from the outpatient oncology, gastroenterology, and urology clinics at VA Chicago Healthcare System (Westside and Lakeside Divisions) and the Hines VA hospital. Individuals with the following conditions will be excluded: (1) dementia; (2) blindness or having severely impaired vision not correctable with eyeglasses; (3) deafness or having hearing problems uncorrectable with hearing aid; and (4) being too ill to participate in the survey. The study sample will include 300 patients with each cancer type (prostate, colorectal, and lung). Based on the patient population at the participating hospitals, we anticipate that 50% of the participants will be African-American and the other 50% will be white. Information about subjects will be obtained through personal surveys and medical record reviews. Each subject will be interviewed to assess health literacy and obtain information about age, race, physical and mental health status, employment and education history, health risk behavior, prior cancer screening, health service access and utilization, trust, satisfaction, and income. During the interview, patients will be asked about prior colorectal and prostate cancer screening tests. Cancer stage information will be obtained by reviewing medical records and pathology reports. The shortened Rapid Estimate of Adult Literacy in Medicine (REALM) will be used to assess health literacy. The shortened REALM consists of a list of 66 common medical terms that participants are asked to read aloud. ANALYSIS PLAN: Logistic regression modeling will be used to estimate the relationship between race and advanced stage

	of prostate, colorectal, or lung cancer at presentation (stages A-C versus stage D), while controlling for differences in age, health literacy level, education, socioeconomic status, social support, health status, and site of care. The dependent variable will be stage D disease at presentation (yes/no). Interaction terms between race and method of cancer diagnosis will also be evaluated. Separate analyses will be performed to assess the impact of trust, satisfaction, screening test utilization, healthcare utilization, and screening test knowledge on the relationship between race and advanced stage at presentation. ANTICIPATED IMPACT: The results of this study will improve our understanding of the underlying factors associated with racial disparities in stage at presentation for the three most common cancers in the VA healthcare system. This information will greatly enhance our ability to design targeted and effective future interventions, specifically, whether future interventions should focus on improving screening test utilization or improving the understanding of early symptoms for low literacy patients. VALUE TO CRC-QUERI STRATEGIC GOALS: Barriers to the implementation of CRC best practices are likely to vary between clinics and sociocultural groups. This study attempts to assess the potential mediating role of health literacy in the relationship between race and cancer-related health. As a result we hope to better understand if health literacy poses a greater barrier to the implementation of best practices among African Americans than among whites.
Race & CDE	XNV 21-063 Race & CDE Fisher, Deborah ACG Clinical Research Award BACKGROUND: Screening for colorectal cancer (CRC) is recommended because it reduces cancer deaths. While the mortality for white patients with CRC has improved, the mortality for black patients has remained constant. Racial differences in CRC screening, specifically the evaluation of a positive screening test, could contribute to the excess mortality. The overall compliance with appropriate evaluation of positive screening fecal occult blood tests (FOBT) is unknown in the VA (Veteran Affairs) system but has been inadequate in non-VA studies. OBJECTIVES: The primary aim of this pilot study is to determine if there are racial differences in the proportion of veterans who receive appropriate evaluation for a positive screening FOBT. The secondary aim is to identify barriers to CRC screening including provider non-adherence to guidelines, system barriers such as excessive waiting time for diagnostic studies and patient noncompliance with recommended tests. The long-term objective of this proposal is to use these pilot data to design targeted interventional trials to reduce barriers to CRC screening. METHODS: Medical records of consecutive patients with a positive screening FOBT in the year 2000 will be abstracted. Race, age, follow-up tests ordered and performed, time intervals to ordering and performing studies and patient noncompliance with scheduled procedures will be collected. The primary outcome will be whether or not an appropriate evaluation of the positive FOBT was performed within 12 months. Appropriate evaluation is defined as a colonoscopy or double contrast barium enema (DCBE), either alone or with a flexible sigmoidoscopy. If an adenoma was found on flexible sigmoidoscopy or a polyp was noted on a DCBE, the appropriate evaluation is a colonoscopy. For the primary outcome the initial analyses will be to estimate and compare the unadjusted adequate follow-up rates between white and black patients. A binomial proportion comparison of two independent samples will be conducted. An adjusted analysis, using logistic

	regression models, will be used to compare rates of adequate evaluation of a positive FOBT between blacks and whites after adjusting for patient compliance, clinic delay time, time to ordering further evaluation and time to completion of further evaluation. VALUE TO CRC QUERI STRATEGIC GOALS: This study should help to identify whether racial disparities exist in the incidence and timeliness CDE completion following a positive CRC screen (CRC QUERI Goal I). If disparities exist, targeted efforts can be designed to increase CDE rates for identified racial groups.
Self-Report Validation	NIH PAR-04-036 Colorectal Cancer Screening Measurement in a VA Population Fisher, Deborah NIH OBJECTIVES: Colorectal cancer is the third most prevalent cancer within the VA system and the second leading cause of cancer death in the United States. Screening for colorectal cancer has been proven to reduce cancer death, but unfortunately, colorectal cancer screening rates are low. The purpose of this study is to evaluate the validity of a new instrument developed by the National Cancer Institute, the Colorectal Cancer Screening (CRCS) Behavior Questionnaire in a population of veterans. Secondary aims include 1) Determination of recent participation in all endorsed modalities for colorectal cancer screening in a diverse sample of veterans 2) Contribution to the long-term goal of developing a resource of cancer screening measures with known reliability and validity across multiple setting and populations 3) Identification of a measure that can be used to assess colorectal cancer screening rates in veterans 4) Assessment of the variability of the degree of difference between self-reported screening history and recorded screening history. RESEARCH DESIGN: Cross-sectional questionnaire study with comparison to medical record review. ANALYSIS: The primary outcome of the analysis will be the 95% confidence interval estimates of the relative sensitivity and specificity of the CRCS Behavior Questionnaire to detect current colorectal cancer screening status by the VA Performance Measure criteria compared to the VA and non-VA medical record (reference standard). STUDY POPULATION: Patients aged 50 or older and enrolled in primary care at the Durham VA or the Minneapolis VA will be included. These sites were chosen because they have diverse demographics and they complement each other in their rural (Durham) and urban environment (Minneapolis) and because both Durham and Minneapolis are sites for Colorectal Cancer QUERI proposals and ongoing projects. IMPACT: The burden of colorectal cancer in the VA population is substantial. Only half of eligible patients receive screening for colorectal cancer, which has been proven to reduce cancer deaths. A validated instrument to measure colorectal cancer screening behavior with minimal response burden will facilitate accurate assessment of secular trends in colorectal cancer behaviors, identification of barriers and facilitators to screening, detection of at-risk populations within the VA and serve as an outcome for interventional studies to improve adherence to colorectal cancer screening guidelines. The instrument would also have clinical and management implications by providing a structured approach to assessing both VA and non-VA screening history in the clinic, and making these data available for administrative use. Validating this instrument will also

	advance the QUERI goal of improving guideline-concordant screening rates among veterans. An additional benefit would be the opportunity to directly compare VA and non-VA studies. VALUE TO CRC QUERI STRATEGIC GOALS: In order to assess the effectiveness of interventions designed to increase CRC screening (CRC QUERI Goal II) it is essential to have accurate measures of screening rates. Patient self-reports may be a useful way to obtain these measures if inaccuracies can be understood and accounted for. Additionally, information on when and why screening self-reports are inaccurate may provide important insight into problems with the screening process. For example, patients who believe that they have been screened but have not may not ask their physician about screening. In terms of building relationships, NCI (developer of the survey instrument) is an important stakeholder in this research.
Health Literacy	CRI 03-153 Determining the Prevalence of Health Literacy Among Veterans Griffin, Joan HSR&D BACKGROUND: Studies estimate that nearly 45% of the U.S. population has difficulty with the basic reading, writing, and computing skills needed to function adequately in society. In this study we will assess health literacy, or literacy skills relevant to health and health care, in veterans at four VA medical centers. We then will evaluate whether poor health literacy skills are a barrier to colorectal cancer (CRC) screening. CRC is one of the leading causes of cancer deaths and is the third most common cancer diagnosed. Randomized clinical trials and systematic reviews demonstrate that early detection and diagnosis reduces morbidity and mortality, but CRC screening is complex. Multiple screening options are acceptable, yet all options vary by pre-screening preparation, invasiveness, sedation, and discomfort. The amount of information necessary to understand screening options and outcomes and the level of complexity needed to prepare and undergo screening may inhibit many from being screened, but especially those unable to read and synthesize informational materials or instructions adequately. MAJOR OBJECTIVES: The primary objectives for this study are to develop an estimate of the prevalence of health literacy at four geographically diverse VAMCs (Minneapolis, Portland, Durham, and West LA), and for specific groups based on age, race, education, and geographic location. Our secondary objectives are to illustrate the potential significance of poor health literacy by linking estimates for those over 50 years old to CRC screening data, examine variation in guideline concordant screening rates by health literacy levels, and identify the mechanisms that may mediate or moderate the effect of health literacy on screening. Principal data sources: Patients who are eligible and willing to participate will complete a face-to-face survey that will include demographic data, functional status, measures of attitudes and beliefs about screening, and the Short-Test of Functional Health Literacy in Adults (S-TOFHLA). Survey data will then be matched to data from the CRC QUERI screening assessment and surveillance data system (CRS 02-162-1) to evaluate screening compliance. RESEARCH DESIGN: The study design is observational. Veterans with upcoming appointments in primary care clinics at

	each of the study sites will be randomly chosen and recruited. Principal type of analysis: Prevalence estimates and outcomes assessment. Study population: Veterans who use VHA primary care services at study sites and have an upcoming appointment. Expected contribution: Identifying the extent of poor functional health literacy among veterans and developing strategies to improve communication efforts directed towards vulnerable veterans addresses VHA's commitment to eliminating health disparities and promoting patient-centered care. Because health information is often readily modifiable this study will also lay the groundwork for a number of potential translation projects that could help reduce the deleterious effects of poor health literacy. Findings from this study are expected to have a number of broad implications for research (e.g., improving informed consent procedures) and practice within the VHA (e.g., improving patient education, better discharge summaries and prescription instructions). The results will identify areas where interventions or system-level changes could be most effective and provide a baseline for which the effect of future interventions could be compared. VALUE TO CRC QUERI STRATEGIC GOALS: This study is designed to both assess the relationship between health literacy and screening rates and to identify mediators and moderators of any relationships found. Learning from this work should help us to understand how to design better interventions to increase CRC screening (CRC QUERI Goal II) among low-literacy veterans. Additionally, by examining demographic and psychographic information in addition to health literacy levels, this study will help CRC QUERI determine if implementation efforts should focus on literacy or on other variables that are more proximally related to CRC screening than literacy.
HDMAA	5P01HS10864-04 Health Disparities in Minority Adult Americans (Project 2) Ling, Bruce (Co-investigator); Ricci/Trauth – (Co-PIs) AHRQ The purpose of this study is to understand a) the content and process of patient provider communication regarding cancer screening that occurs during regular primary care visits, and b) the impact that these communications have on adherence with provider screening recommendations. This will be accomplished by determining the degree of concordance between provider communication regarding colorectal and prostate cancer and patient understanding of what was said, examining differences between African American and White patients. VALUE TO CRC QUERI STRATEGIC GOALS: Effective patient provider communication is a necessary component of any individualized CRC screening plan. Research indicating that veterans low in health literacy are under screened compared to the general veteran population suggests the importance of patient understanding of the CRC process and the associated benefits. By identifying specific aspects of physician screening communications that are misunderstood by minority patients, this study should lead to the design of improved physician communication tools and strategies and result in improved CRC screening rates (CRC QUERI Goal II) among minorities.

Screening Service Utilization	K07 CA90359 01 Delivery and Utilization of Colorectal Cancer Screening Ling, Bruce NIH/NCI This Cancer Prevention, Control and Population Sciences Center Development Award (K07) will allow the candidate to evaluate and improve the delivery and utilization of colorectal cancer screening services. In the research component, the candidate will conduct a prospective cohort study to assess the facilitators and barriers to colorectal cancer screening in the primary care clinical setting using an established behavioral model of preventive health care. The career development plan concentrates on a diverse set of tutorials directed by experts in cancer screening, patient and provider behavior change, adherence to medical care recommendations, outcomes research, and informed decision making and advanced coursework focused on health care guidelines, health care delivery systems, and use of multimedia for the clinical setting. The mentored research project addresses the need to improve colorectal cancer screening rates. The specific aims of the research proposal are (1) to describe the frequency with which health care providers appropriately recommend and patients complete colorectal cancer screening tests, (2) to identify patient, provider, and system factors associated with appropriate provider recommendation and patient completion of colorectal cancer screening tests, (3) to assess the patient-provider interaction by determining the association between the use of informed decision making in the clinical encounter with a provider recommendation and patient completion of these recommended tests, and (4) to develop and pilot test a multifaceted patient, provider, and systems level intervention to motivate providers to appropriately recommend colorectal cancer screening tests and patients to adhere with these recommendations. These issues will be examined in two phases. In phase I, aims 1-3 will be addressed in prospective, cohort study of patients age 50-70 years at one academic, one community, and one VA clinical site. Survey research methods and analysis of audio taped clinical visits will be applied in phase I. Findings from phase I will guide the development of a multifaceted intervention during phase II (aim 4). At the end of the project, the candidate will be prepared to obtain the extramural funding required to implement the intervention in a multi-center trial as well as designing behavior interventions for other cancer screening strategies. VALUE TO CRC QUERI STRATEGIC GOALS: The goal of this work is to measure and diagnose performance gaps in the CRC screening (CRC QUERI Goal II) and is being conducted in order to form a strong evidence based foundation for a future multi-center trial of a CRC screening intervention. The projects inclusion of both veteran and non-veteran population may help us to better identify barriers to screening that are unique to the VA.
CRC Sc & Endo	PERT-51 Coordinated Endoscopic Colorectal Cancer Screening Ling, Bruce (Co-investigator); (Weissfeld – PI) CDC This study will implement and evaluate a comprehensive, coordinated, and systematic approach to promoting routine colorectal cancer screening within a typical primary care physician network. Specifically, using a 2X2 design, patient participants will either receive: (1) low level patient letter, low level practice intervention, (2) low level patient letter, high level

	practice implementation, (3) high level patient letter, low level practice intervention, or (4) high level patient letter, high level practice intervention. VALUE TO CRC QUERI STRATEGIC GOALS: This project tests an intervention to improve CRC screening (CRC QUERI Goal II)
Stages of Change Intervention	R01 CA97263 Tailored Interactive Intervention to Increase CRC Screening Vernon, Sally NIH/NCI Colorectal cancer (CRC) is the 2nd leading cause of cancer deaths in the U.S. and CRC risk increases with age. Most organizations suggest that, for those at average risk, screening should be initiated at age 50. Colorectal cancer screening (CRCS) is cost-effective and offers the possibility of early detection as well as prevention. However, the use of every CRCS test is low and has not increased substantially in recent years. Clearly, interventions to increase screening are needed. The primary goal of this 5-year research project is to conduct a prospective randomized trial of a tailored interactive computer-based intervention to increase patient completion of CRCS among patients aged 50-64 years in a multi-specialty primary care practice in Houston, TX. A stratified random sample based on sex and prior screening history will be recruited. The primary outcome will be completion of any CRCS test (following ACS guidelines) within 6 months of the intervention. Secondary goals are to increase understanding of factors that predict completion of CRCS and to assess the cost-effectiveness of the intervention. The transtheoretical (stages of change) model will be used to guide intervention development. To implement our specific aims we will use Intervention Mapping, a framework for systematic health promotion program planning that incorporates theory and empiric evidence to identify determinants of a behavior, develop intervention objectives, and select methods and strategies for an intervention. The intervention will be delivered immediately prior to a patient's clinic visit via a personal computer installed in the clinic's Patient Education Center. It will be an interactive audiovisual program tailored to a participant's status on a series of variables including readiness to engage in CRCS. The interactive program will generate a checklist of questions and concerns identified by the patient that can be used to initiate a discussion about CRCS with the physician. Two comparison groups will be included: a no-contact control group and a control group who receive generic printed CRCS educational materials immediately prior to their clinic visit. All three groups will involve the provision of a physician reminder placed in the medical chart prior to the clinic visit. Telephone follow-up and medical record review will be conducted 6 months after delivery of the intervention to ascertain completion of CRCS. VALUE TO CRC QUERI STRATEGIC GOALS: In addition to assessing the impact and cost-effectiveness of a conceptually grounded CRC screening intervention (CRC QUERI Goal II), this work may lead to intervention improvements at other stages in CRC healthcare process. For example, insights regarding the stages-of-change based computer intervention may be applied to patient education systems designed to insure the successful completion of a complete diagnostic evaluation following a positive CRC screening (CRC QUERI Goal I). Methodologically, this study compares the intervention to both a "no intervention" control group and a "generic education materials" group. Thus, it provides a stronger and more implementation-oriented test of the effectiveness of the intervention than studies using a control group alone. From a technology standpoint, this project will provide CRC QUERI with useful learning on the feasibility and hurdles associated

	with interactive computer systems to customize patients' exposure to CRC screening information.
VHA Practice Assessment Survey	MRC 05-093 VHA Practice System Assessment Survey Yano, Elizabeth VA HSR&D BACKGROUND/RATIONALE: At the heart of the Institute of Medicine's "Crossing the Quality Chasm" was the need to address the improvement of quality of care through major changes in how health care is organized. Their central tenet was that only through significant, sustained and innovative efforts to reorganize the health care system were substantive gains in quality of care and health outcomes possible. VA's reorganization of care presaged this report by having already launched significant internal restructuring of the care delivery system, including changes in delivery models (e.g., primary care teams, service lines) and adoption of new technologies (e.g., CPRS) and management strategies (e.g., reminders, guideline implementation, performance audit/feedback). While these organizational changes in the aggregate have been found to be associated with substantial gains in VA quality over time and in comparison to Medicare, relatively little is known about the discrete organizational characteristics in VA facilities that have specifically contributed to these changes and which structural features will foster ongoing quality improvement. The need for identifying the organizational influences on quality is all the more important given recent research that indicates that structural differences in how care is organized may explain a greater proportion of the variance in performance than that explained by patient factors alone. OBJECTIVE(S): Our objectives are to collaboratively develop a VA clinical practice system assessment survey that meets the combined operational and research needs of the VA Office of Quality & Performance (OQP) and HSR&D investigators by measuring organizational traits of VA facilities that may be associated with performance, including fixed and mutable characteristics that will support the design and adaptation of future quality improvement (QI) policies, practices and interventions. Two key aims will guide the organizational assessment: (1) the ability to benchmark VA health care organizational characteristics with those of non-VA health care settings, plans, and organizations, and (2) the ability to examine time trends in organizational change based on previous VA organizational survey data METHODS: Using a participatory, multi-method approach, we will develop, pilot test, administer and analyze the results of a key informant survey measuring the organizational and practice system features of care at individual VA health care facilities. To develop the organizational survey, we will review the published literature, integrate expert opinion and cull organizational measures from an array of existing survey tools; content finalization will be achieved through iterative review, priority-setting and pilot testing to assure a field-worthy instrument that minimizes response burden while maximizing information yield. Key informants will be identified and selected on the basis of the knowledge/familiarity of each individual VA facility (e.g., Chief of Staff, Primary Care Director). The unit of analysis will be each geographically distinct site of care, including all VA medical centers and large community-based outpatient clinics (e.g., those serving 4,000+ patients and delivering 20,000+ visits/year) based on VA Outpatient Clinic file data queries. Field preparation and survey administration activities will rely on the tailored design method and build on extensive prior experience fielding similar surveys in VA. Data will be 100% double-entered using detailed question-by-question specifications, followed by data reduction, scale development and basic survey analysis.

	IMPACT: Understanding structural variations and their links to quality of care will help inform the design of more effective QI policies and practices and enable improved "fit" of QI interventions to individual VA facilities. Ultimately, evaluation of the organizational influences on quality of care in VA settings will foster evidence-based practice changes that will have substantial potential for improving the quality of chronic disease and preventive care, as well as veterans' ratings of the quality of care they receive in VA facilities. VALUE TO CRCSQUERI STRATEGIC GOALS: This work will help CRC QUERI to better understand the general organizational variables that lead to high quality care at VA facilities. Additionally, in working with OQP, this project should provide us with a deeper understanding of the VA's system-wide approach to quality control and enhancement.

Appendix D. Projects Abstracts, Planned Projects

Core Projects - Planned

CDE Capacity	Estimate of ideal GI staffing needed to support prompt CDE following positive screen Kochevar, Laura Core LIP This study will develop a simulation model to address endoscopic capacity within the VA. We are interested in capturing the effects of demand for all GI services; primary care utilization and CRC screening rates; screening modality; surveillance and diagnostic colonoscopy demand; resources such as provider and staff FTE, procedure, recovery room and other material resources; and patient adherence and prep. The goals are to estimate the clinical FTE and material resources necessary to address current and expected demand for endoscopy services and to estimate the potential effectiveness of interventions designed to maximize capacity utilization. VALUE TO CRC-QUERI STRATEGIC GOALS: If the VA hopes to substantially increase the number of veterans who successfully complete a CDE following a positive CRC screen (CRC-QUERI Goal I), endoscopy capacity issues must be addressed. Understanding current capacity at VA facilities will provide information on how to reduce wait times for colonoscopies and offer an indication of the changes that would need to occur to incorporate direct screening colonoscopy into their CRC screening program.

Non-core Projects - Planned

Screening Adherence	Impact of Adherence on Outcomes of Colorectal Cancer Screening Inadomi, John M. OBJECTIVES: In environments with limited economic resources, it is paramount that the cost-effectiveness of competing strategies of management be compared. Our previous work illustrates that the cost-effectiveness of screening to decrease mortality from colorectal cancer (CRC) depends heavily on adherence, and specifically on whether adherence between screening strategies is heterogeneous. Moreover, there is evidence that the existence of multiple strategies may adversely affect adherence to screening. The objectives of this study are to: 1. Determine whether there is heterogeneity in adherence between competing strategies of CRC screening, and assess whether counseling about multiple screening strategies is associated with lower overall adherence compared to counseling about a single strategy, 2. Utilize prospective rates of adherence to calculate the true incremental cost-effectiveness between competing CRC screening strategies, 3. Identify factors associated with non-adherence to screening.

	RESEARCH DESIGN: Randomized clinical trial, where subjects are randomized to receive counseling about CRC screening using 1. Fecal occult blood testing (FOBT) plus flexible sigmoidoscopy (FS), 2. Colonoscopy, or 3. Both strategies. Counseling is to be conducted by a research nurse using a standardized format. A study survey, which is based on constructs of the Health Belief Model, will be administered. POPULATION TO BE STUDIED: Veterans at average risk for development of CRC. PRINCIPAL SOURCE OF DATA: 1. The primary outcome is adherence to CRC screening, defined as performance of the screening strategy (receipt of 3 FOBT cards plus performance of FS AND performance of colonoscopy if either FOBT or FS is positive, OR performance of colonoscopy) within 12-months of enrollment, verified through computerized medical records (CPRS) and subject contact, 2. Secondary outcomes include assessment of preventive intention, measured by subject scheduling of CRC test(s), calculation of the incremental cost-effectiveness between competing strategies of CRC screening, and identification of factors associated with non-adherence to CRC screening, based on responses to the study survey. PRINCIPAL TYPES OF ANALYSIS: Specific objective 1 will compare adherence to FOBT/FS with adherence to colonoscopy; in addition, adherence among subjects counseled about a single-strategy will be compared to adherence among subjects counseled about both strategies. Specific objective 2 will calculate the incremental cost-effectiveness analysis incorporating the prospectively derived adherence rates in established models of CRC. Specific objective 3 will examine the association between potential predictive factors identified from the study survey on adherence to CRC screening. Analytic methods will include Chi-square testing of proportions and logistic regression analysis. Cost-effectiveness analysis will use our published decision analytic models. VALUE TO CRC-QUERI STRATEGIC GOALS: In order to ensure that the most effective and cost-effective CRC screening methods are employed, comparison of adherence to competing strategies must be performed. Additionally, the current practice of providing multiple options for screening may prove detrimental to achieving optimal adherence to screening; this fundamental principal may be applicable not only to CRC but also to other forms of disease screening. Barriers to screening will be identified through this study that may be used to formulate novel programs to increase screening adherence.
Vietnam Vets	NIH PAR-04-036 Vietnam Veterans and Colorectal Cancer Screening Vernon, Sally NIH Colorectal cancer (CRC) is the 2nd leading cause of cancer deaths in the US and risk increases with age. Colorectal cancer screening (CRCS) offers the possibility of both early detection and prevention. Thus, for those at average risk, CRCS beginning at age 50 is recommended. However, awareness and use of any CRCS test is low, and has not increased substantially in recent years. We propose to develop and test stepped interventions to increase initial uptake of CRCS in a nationally-representative sample of male and female veterans. Our specific aims are to: (1) Use Intervention Mapping, a framework for systematic development, implementation, evaluation, and dissemination of health promotion programs, to

	develop and pretest stepped intervention components that are theory- and evidence-informed; (2) Implement and evaluate the process, efficacy, and cost-effectiveness of stepped interventions to increase an initial CRCS among male and female veterans aged 50-64 years; and (3) Analyze the association between predictor variables and CRCS initiation after each intervention step. In Step 1, we will evaluate a minimal cue delivered by a letter, live-person phone call, or automated phone call compared with a survey-only control group. In Step 2, we will evaluate a more intensive telephone intervention based on the Transtheoretical Model and principles of Motivation Interviewing and delivered either by a counselor or by an automated telephone-linked communication (TLC) system. For persons who do not adopt the target behavior in Step 1, we will use a more intensive approach in Step 2 that addresses resistance. We also will evaluate the cost-effectiveness of the interventions and will conduct a process evaluation to assess the quality of intervention delivery. VALUE TO CRC-QUERI STRATEGIC GOALS: This study attempts to move a theory based intervention through all phases of the QUERI stages model. Focus of the study is on development of a cost-effective method that prompts to action those more willing to change. The implementation orientation of this work should make the project more easily disseminable in real-world settings.
CBOC	Intervention to Promote Recommendation of Colorectal Cancer Screening Bennett, Charles VA HSR&D BACKGROUND: The purpose of this randomized controlled trial is to implement and evaluate a continuous quality improvement (CQI) intervention strategy aimed at improving colorectal cancer (CRC) screening in a group of VA Community Based Outpatient Clinics (CBOC). CBOCs are VA operated clinics or VA funded/ reimbursed health care facilities or sites that are geographically distinct or separate from the parent medical facility. This project is an effort to translate research into practice by extending a novel and successful intervention designed to improve colorectal cancer screening rates from a single, large tertiary care VA Medical Center to the community VA medical setting. The initial intervention, involved a medical system staffed primarily by 60 internal medicine residents. It resulted in a 25% improvement in CRC screening recommendation rates and 10% improvement in CRC completion rates among Veterans primarily through the use of quarterly 1-hour interactive feedback sessions. The intervention is based on the continuous quality improvement (CQI) framework that serves for much of the ongoing health care initiatives today. OBJECTIVES: Test the adapted CQI program to determine whether it improves 1) colorectal cancer screening rates and 2) physician CRC recommendation rates in the CBOCs that participate in the intervention arm versus rates observed from the CBOCs in the control arm. DESIGN: This study will be conducted in three stages: 1) intervention refinement (six months) 2) intervention implementation (18 months) and 3) evaluation (12 months). Evaluation of the intervention will be based on data for patients treated in twelve CBOCs associated with two VAMCs. The primary outcomes of this clinical trial will be a comparison of the screening rates between the intervention group (n= 9,000 patients) and the standard care group (n=9,000 patients) post-intervention. At each intervention CBOC, primary care providers will attend quarterly 2-hour workshops on rationale and guidelines for CRC screening, and on improving communication with patients with limited literacy skills. At each session providers will also receive confidential information on their individual recommendation and screening rates. In addition to measuring recommendation and screening rates throughout the study, survey data will be obtained from providers, patients and site

	administrators for process evaluation. CLINICAL SIGNIFICANCE: Despite evidence and clinical guidelines supporting CRC screening, only a small percentage of the population has been screened. [MMWR 1999] Low CRC screening rates are particularly evident among the VA population. Out of the 17 quality-of-care indicators routinely evaluated by the VA Health Care System, CRC screening scores the lowest. [Jha 2003] We therefore propose to undertake a primary care provider-directed intervention to increase CRC screening recommendation and completion rates at a VA CBOC. VALUE TO CRC-QUERI STRATEGIC GOALS: Interventions to increase CRC screening rates (CRC-QUERI Goal II) have the greatest potential for impact among populations that are currently the most underscreened. CBOC screening rates have been found to be lower than parent VAMC's. Additionally, the CBOC sites participating have a patient poverty rate of over 95% and many have limited literacy skills. These variables have been found to also be associated with low CRC screening rates. By extending a successful intervention to serve this high-need population, this study will advance the development of a much needed tool for CBOCs and other VA facilities serving disproportionately disadvantaged populations.

Table 1. Impacts, Contributions and Products

Description	Project Label and Center (Goal)
IMPACTS	
Process-of-care / performance improvements	
Provided detailed process measure reports on complete diagnostic evaluation (see Attachment C) to 21 VA facilities. We are currently evaluating the impact on performance, but user satisfaction is high.	**C4 (1)**
Assistance provided to the Minneapolis GI Endoscopy Clinic with local data collection and analysis. The clinic has modified its scheduling procedures and eliminated the pre-colonoscopy visit. Preliminary data suggest decreased no shows, but it is too early to assess the impact on overall endoscopy completion rates. The QUERI continues to work with the clinic and is sharing lessons learned with the C4 program.	**Coordinating Center (1)**
An automated Event Notification System has been deployed at the Portland VA. To date 723 referrals have been processed through the system. In the year prior to system deployment the percent of FOBT positive patients referred for GI consult within 90 days in Portland was 61.5%. The rate was 91.2% in the first three months following ENS deployment.	**CRC SDP (1)**
We are supporting development of a CPRS template to assist physicians in selecting the appropriate bowel preparation for patients.	**Coloprep (1)**
Morbidity performance improvements	
Mortality performance improvements	
Quality of life improvements	
Cost/utilization savings	
Other patient and system impacts	
CONTRIBUTIONS	
Contributions to VHA activities/entities	

Description	Project Label and Center (Goal)
CRC executive committee members and affiliated researchers are active in the following medical care activities: • **VA GI Field Advisory Committee** (Bond, Patel, Provenzale) Assistance in setting national policy for GI providers. • **GPRA Oncology Review Steering Committee** (Provenzale) Consultation on methods for external review of VA oncology practices.	**Coordinating Center (1-3)**
Consultation efforts	
Conducted national survey on lung cancer diagnostic processes for the CMO/QMO workgroup (Kochevar, Powell).	**Coordinating Center (1-3)**
Technical Assistance and consultation to 19 VA principal investigators.	**Coordinating Center (1,2,3)**
CLINICAL PRACTICE PRODUCTS	
Clinician education materials	
We partnered with OQP and ACA in the development and delivery of educational materials (see Attachment C) for the C4 learning collaborative and Drs Kochevar and Provenzale served as faculty at the collaborative face-to-face learning session. The educational materials include local measurement strategies as well as strategies for overcoming common barriers to efficient endoscopic practice. Evaluation is ongoing, but initial satisfaction surveys were highly positive.	**C4 (1)**
We have published three issues of our newsletter, "Affiliate Forum" (see Attachment A). The newsletter is disseminated to clinicians, managers and researchers who have expressed a special interest in working with the QUERI to achieve its goals.	**Coordinating Center (1-3)**
In partnership with CIDER, we have sponsored three CRC QUERI Research Seminars using the CIDER WebEx system. Topics and attendence are listed in Attachment D.	**Coordinating Center (1-3)**
We have initiated a clinical letter disseminated to all primary care and GI clinicians (see Attachment B). The clinical letters address practical issues of interest to clinicians to help them integrate evidence into practice.	**Coordinating Center**

Description	Project Label and Center (Goal)
	(1-3)
33 scholarly publications targeting journals widely read by practitioners (see Table 2).	**Coordinating Center (1-3)**
26 presentations at research conferences and to stakeholder groups (see Table 2).	**Coordinating Center (1-3)**
Web page.	**Coordinating Center (1-3)**
Patient education materials	
We are developing video and audio patient education materials to improve patient prep and completion rates for endoscopic exams. The video materials will be made available to patients in the Minneapolis GI clinic waiting area. If successful, they will be disseminated and tested in a wider range of facilities. The audio messages are the basis of the GIVER program, and will be delivered via an interactive voice response system to veterans at home. While testing will be performed with patients of the Minneapolis GI endoscopy clinic, GIVER includes a national GI advisory board to speed dissemination to a wider range of facilities.	**Coordinating Center**, **GIVER (1)**
Other clinical practice support tools	
RESEARCH PRODUCTS	
Findings	
Databases	
C4 (expansion of CRC SAFE)	**C4 (1,2)**
Measures and methods	
In partnership with OQP we have developed measures to assist facilities in developing quality improvement efforts. The measures cover clinical processes from follow up of colorectal cancer screening through providing guideline-concordant care.	**CRC SAFE, CanCORS C4 (2,3)**

Description	Project Label and Center (Goal)
In partnership with VA HSR&D we have been working with the VACCR to make these data available for quality improvement monitoring and research.	**Tumor Registry CanCORS (3)**

Table 2. Publications and Presentations

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Research Publications										
Burgess DJ, van Ryn M, Fu SS.	Making sense of the provider role in promoting disparities	Journal of Internal Medicine. 2005:19, 1154-9.	Provider Attitudes		X					
Bond JH.	Screening for colorectal cancer.	New Horizons (in press).	n/a		X					
Bond JH.	Screening for colorectal cancer: Is there progress for early detection?	Pract Gastroenterol (in press).	n/a		X					X
Bond JH.	Preface on virtual colonoscopy.	In Atlas of Virtual Colonoscopy. Dachman AH, editor (in press).	n/a		X					X
Lieberman, Collins JF, Durbin TE, Weiss DG, Bond, JH and the VA cooperative Study #380 Group.	Screening for colorectal neoplasia with digital exam versus 6-sample fecal occult blood test.	Annals of Internal Med. 2005; 142:2 pp. 81-6.	n/a							X
Saunders CS, Bond JH.	Screening for colorectal cancer: The newest evidence.	Patient Care (in press).	n/a		X					X
Baldwin LM, Dobie S, Billingsley K, Cai Y, Wright G, Dominitz J, Barlow WE, Warren J, Taplin S.	Black-white differences in receipt of recommended colon cancer treatment: what explains the disparities?	Journal of National Cancer Institute (in press).	n/a		X					
McDonnell WM, Dominitz JA.	CT colonoscopy.	Gastroenterology 2004; 127(2):693	n/a			X				

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Rudolph RE, Dominitz JA, Lampe JW, Levy L, Qu P, Li S, Lampe PD, Bronner MP, Potter JD.	Risk factors for colorectal cancer in relation to number and size of aberrant crypt foci in humans.	Cancer Epidemiology, Biomarkers and Prevention 2005; 14(3): 605-8.	n/a		X					
Dolan NC, Ferreira MR, Davis TC, Fitzgibbon ML, Rademaker A, Liu D, Schmitt BP, Gorgy NG, Wolf M, Bennett, CL.	Colorectal Cancer Screening Knowledge, Attitudes and Beliefs Among Veterans: Does Literacy Make a Difference?	J. Clin. Oncology 2004; 22:2617-22.	Literacy & Race Barriers		X					
Dolan NC, Ferreira MR, Fitzgibbon ML, Davis TC, Rademaker A, Liu D, Lee J. Wolf M, Schmitt BP, Bennett CL.	Colorectal Cancer Screening Among African-American and White Males in a VA General Medicine Practice.	Am J. Prev Med 2005; 28:479-82.	Literacy & Race Barriers		X					
Ferreira MR, Dolan NC, Fitzgibbon ML, Davis TC, Gorby N, Ladewski L, Liu D, Rademaker A, Medio F, Schmitt BP, Bennett CL.	A Health Care Provider-Directed Intervention to Increase Colorectal Cancer Screening Among Veterans: Results of a Randomized Controlled Trial.	J. Clin Oncol 2005; 23:1548-54.	n/a		X					

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Ferreira MR, Dolan NC, Fitzgibbon ML, Newlin R, Davis TC, Rademaker A, Schmitt BP, Medio F, Bennett CL.	An Intervention to Increase Colorectal Cancer Screening Among Veterans: Rationale and Study Design.	International Journal of Cancer Prevention 2005 (in press).	Patient/Provider Ed		X					
Wolf MS, Rademaker A, Bennett CL, Ferreira MR, Dolan NC, Davis TC, Medio F, Liu D, Lee J, Fitzgibbon ML.	Colon Cancer Screening Knowledge and Attitudes Among Veterans: Development of a Brief Survey.	Preventing Chronic Disease 2005; 2:A11.	n/a		X					
Fisher DA, Dougherty K, Martin C, Galanko J, Provenzale D, Sandler RS.	Race and colorectal cancer screening: A population-based study in North Carolina.	NC Med J. 2004; 65: 12-15	Race and CDE		X					
Fisher DA, Martin, Galanko J, Sandler RS, Noble MD, Provenzale D.	Risk factors for advanced disease in colorectal cancer.	Amer J Gastroenterol 2004; 99: 2019-24.	n/a		X					
Fisher DA, Judd L, Sanford NS.	Inappropriate colorectal cancer screening: findings and implications.	Am J. Gastroenterol 2005 (in press).	n/a		X					
Sultan S, Fisher DA, Voils C, Kinney AY, Sandler RS, Provenzale D.	The impact of functional support on health related quality of life in colon cancer patients.	Cancer 2004; 101:2737-43.	n/a			X				

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Imperiale TF Ransofhoff DF, Itzhowitz SH, Turnbull BA, Ross ME.	Comparison of a stool DNA panel with hemoccult II for non-invasive screening for colorectal neoplasia in an average risk population.	N Engl J Med 2004; 351:2704-2714.	n/a		X					
Kochevar, LK, Yano, EM	Understanding Health Care Organization Needs and Context: Beyond Performance Gaps	Journal of General Internal Medicine (in Press)	n/a						x	
Sales, AE, Smith, JL, Curran, G, Kochevar, LK	**Models, strategies and tools:** **Theory in implementing evidence-based findings into healthcare practice**	Journal of General Internal Medicine (in Press)	n/a						x	
Hagedorn, H, Hogan, M, .Smith, JL, Bowman, C. Curran, G, Espadas' D, Kimmel, B, Kochevar, LK, Legro, MW, Sales, AE	Lessons Learned About Implementing Research Evidence Into Clinical Practice: *Experiences from VA QUERI*	Journal of General Internal Medicine (in Press)	n/a						x	
Kahi CJ, Imperiale TF.	Do aspirin and non-steroidal anti-inflammatory agents cause a false positive fecal blood test?	Am J Medicine 2004; 837-41.	n/a		X					
Farraye F, Horton K, Hersey H, Trnka Y, Hereen, T, Provenzale D.	Screening flexible sigmoidoscopy using an upper endoscope is better tolerated by women.	Am J Gastroenterol (in press).	n/a		X					
Provenzale D, Gray R.	Colorectal Cancer Screening and Treatment: A Survey of Outcomes Research.	J Natl Cancer Inst 2005 (in press).	n/a		X					

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Rothenberger DA.	If you can keep your head…clinical decision-making in the age of evidence based medicine.	Dis Colon Rectum (in press).	n/a		X					
van Ryn, M and Burgess, D.	How do we advance meaningful research on disparities in health care?	Canadian Medical Association Journal (in press).	Provider Attitudes						X	
Ford ME, Randolph V, Hopkins-Johnson L, Eason SL, Havstad S, Jankowski M, Swanson GM, Vernon SW.	Design of a case management approach to enhancing cancer screening trial adherence among older African American men.	Journal of Aging and Health (in press).	n/a				X			
Meissner HI, Smith RA, Rimer BK, Briss P, Rakowski W, Wilson K, Vernon SW.	Promoting cancer screening: learning from experience.	Cancer (in press).	NetLET				X	X		X
Seeff LC, Nadel MR, Klabunde C, Thompson T, Shapiro JA, Vernon SW, Coates R.	Patterns and predictors of colorectal cancer test use in the adult U.S. population.	Cancer (in press).	n/a			X				
Vernon SW, Briss P, Tiro J, Warnecke RB.	Some methodologic lessons learned from cancer screening studies.	Cancer (in press).	n/a						X	

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Etzioni DA, Yano, EM, Rubenstein LV, Lee ML, Ko CY, Brook RH, Parkerton PH, Soban LM, Asch SM.	Measuring the quality of colorectal cancer screening: are screening rates adequate?	International Journal of Health Care Quality (under review).	n/a		X					
Soban JM, Yano EM.	The impact of primary care resource sufficiency on prevention performance.	Ambulatory Care Management, 2005; 28(3) 221-43.	n/a	X	X					
Non-Research Publications										
Presentations										
Baxter N, Durham SB, Tepper J, Virnig BA	The Risk of Rectal Cancer is increased after Prostate Radiation: a Population-based Study	2005 GI Cancer Symposium, Hollywood FL.	n/a			X				
Dominitz, JA.	CT Colonography for Colorectal Cancer Screening.	Tacoma Digestive Specialists, January 8, 2004	n/a		X					
Dominitz JA.	Colorectal Cancer Screening: Shining Light Where the Sun Don't Shine.	Multiple presentations 2004-5: - Dept of Medicine, U of WA Medical Center - Southern California - Seattle	n/a		X					
Dominitz, JA.	Colonoscopic Screening of Average-Risk Women.	GI Pre-Clinic Conference, Puget Sound VAMC, May 24, 2005.	n/a		X					
Dominitz JA.	Best Colon Research	Southern California Post-DDW Meeting, San Diego, CA, July 17, 2004.	n/a		X					
Dominitz JA.	Update on Colorectal Cancer Screening and Virtual Colonoscopy	University of Washington Family Medicine, September 16, 2004.	n/a		X					

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Dominitz JA.	Epidemiology and Methods in Outcomes Research.	Gastroenterology Research Group Methodologies in Healthcare Outcomes in Gastroenterology Symposium, November 5, 2004.	n/a	X	X					
Ferreira MR.	Process Evaluation in an Intervention to Improve Colorectal Cancer Screening.	HSR&D Annual Meeting, Washington DC, February, 2005.	n/a		X					
Fisher DA.	Evaluation of a positive fecal occult blood test.	HSR&D Annual Meeting, Washington DC, March, 2004.	n/a		X					
Fisher DA.	Barriers to follow-up for positive colorectal cancer screening tests.	Digestive Disease Week, New Orleans, LA, May, 2004.	n/a		X					
Fisher DA.	Mortality and follow-up colonoscopy for colorectal cancer.	REGAL award symposium, Miami, FL, October, 2004.	n/a		X					
Fisher, DA.	Outcomes research in colorectal cancer screening.	Biology Seminar sponsored by PAIR, North Carolina Central University, Durham, NC, February, 2005.	n/a		X					
Fisher, DA.	Co-morbidity and screening: Are we screening the wrong patients?	GI Epidemiology Conference, UNC, Chapel Hill, NC, April, 2005.	n/a		X					
Friedemann-Sanchez, Greta	Barriers to Colorectal Cancer Screening and to Screening Decision-Making by Gender	WebEx Presentation to CRC QUERI Affiliates, May, 2005.	n/a		X					
Imperiale TF.	Screening for Colorectal Cancer: Past, Present and Future.	CRWU – Cleveland, OH, March, 2005.	n/a		X					
Khurana, V., Sontag, S., and Kochevar, L.K.	Screening For Colorectal Cancer Using Colonoscopy Is Feasible In The VA System Depending On Appropriateness Of Resources.	69th Annual Scientific Meeting of the American College of Gastroenterology, Orlando, FL, October 31- November 3, 2004.	GI FAC			X				

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Kochevar, Laura	Advanced Implementation Research Workshop	VA HSR&D Annual Meeting, Baltimore, MD, February 16-18, 2005	C4		X					
Kochevar, Laura	Measuring Quality in Colorectal Cancer Diagnosis and Care	VA Office of Quality and Performance and Patient Care Services Leadership, Washington, DC, March 1, 2005.	C4		X					
Kochevar, Laura	Measuring Quality in Colorectal Cancer Diagnosis and Care	VA Quality Management Improvement Council, Washington, DC, April 6, 2005.	C4	X	X					
Kochevar, Laura	Measuring Quality in Colorectal Cancer Diagnosis and Care	VA Advance Clinic Access Steering Committee, Washington, DC, May 5, 2005.	C4	X	X					
Kochevar, Laura	Colorectal Cancer Care Collaborative (C4) Face-to-Face Learning Session, Faculty	21 VAMCs and members of CO, ACA, OQP, Las Vegas, NV, September 21, 2005.	C4	X	X					
Kochevar, LK and Khurana, V.	Perceived Evidence Base and Leadership Attitudes Toward Screening Colonoscopy	Poster presentation at the Society for Medical Decision Making October 19, 2005.	GI FAC			X				
Soban LM, Yano EM, Parkerton PH, Rubenstein, LV, Luck J, Ettner S.	The role of the local environment in VA care: Does managed care matter?	Poster presentation at the VA HSR&D Annual Meeting, Baltimore, MD, February 16-18, 2005.	n/a			X				
Soban LM, Yano EM, Parkerton PH, Rubenstein LV, Ettner S.	The effect of area HMO market share on colorectal cancer screening within the VA healthcare system.	Poster presentation at AcademyHealth, Boston M, JUNE 26, 2005.	n/a		X					
Yano EM, Soban, LM, Etzioni, DA, Parkerton PH.	Practice- and patient-level predictors of colorectal cancer screening rates.	Poster presentation at the VA HSR&D Annual Meeting, Baltimore, MD, February 16-18, 2005.	n/a		X					

Author(s)	Title	Journal/Presentation	Project Label	QUERI Activity Code						
				1	2	3	4	5/6	M	C
Yano EM, Soban LM, Etzioni DA, Parkerton PH.	Influences of the organization of primary care practices on variations in colorectal cancer screening rates.	7th Annual Health Care Organizations Conference, Virginia Commonwealth College, June 3-4, 2005.	n/a		X					
Other Dissemination/Publicity Efforts										

Table 3. Active and Completed Projects

Project ID and (Center Goal)	Project Label	Project Title	Principal Investigator	Type / Source	Current FY Amount	Total Amount	Start – End Dates and Status	QUERI Activity Code						
								1	2	3	4	5/6	M	C
Goal 1: Improve the referral, show, and completion rate for CDE following a positive FOBT, FS, or DCBE														
CCDOR LIP DSC **(1,2)**	Screening Colonoscopy Barriers	Provider Interview Study: Focus on Acceptability of Direct Screening Colonoscopy and Identification of Methods to Increase Endoscopic Appointment Completion Rates	Burgess, Diana & Kochevar, Laura	CCDOR (HSR&D) LIP	$60,125	$60,125	8/03 – 9/05 Analysis			X	X			
LIP 67-005 **(1)**	Colo-Prep	Effect of a System For Determining Method of Preparation for Colonoscopy	Imperiale, Thomas	LIP	$35,000	$35,000	9/05 Developing Prototype				X	X		
CRS 02-162 ***(1, 2)***	*CRC SAFE*	*Colorectal Cancer Screening Assessment and Surveillance Data System*	*Kochevar, Laura*	*NCI*	*$331,100*	*$892,000*	*7/02 – 6/05 Analysis and dissemination*	*X*		*X*			*X*	
Core LIP **(1)**	Endoscopy Non-Completion Risk	Empirical Predictors of Endoscopy Non-Completion	Kochevar, Laura	CCDOR (HSR&D) LIP	$6,000	$6,000	8/03 – 9/05 Analysis			X	X		X	
CAN 03-296 **(1,3)**	C4 (CRC SAFE II)	Colorectal Cancer Care Collaborative	Kochevar, Laura	VA HSR&D QLIP	$50,000	$50,000	09/05-09/06 Data Analysis					X		

Project ID and (Center Goal)	Project Label	Project Title	Principal Investigator	Type / Source	Current FY Amount	Total Amount	Start – End Dates and Status	QUERI Activity Code						
								1	2	3	4	5/6	M	C
IIR 03-295-2 **(1)**	GIVER (Telehealth)	Home Telehealth Reminders to Improve Colonoscopic Prep and Reduce No-Shows	Kochevar, Laura	VA HSR&D	$384,767	$836,889	10/05 – 06/07 Start-Up Activities				X	X		
(1)	Key Informant	Key Informant Interview Study of CDE Policies and Procedures	Kochevar, Laura	VACO LIP	$50,000	$50,000	8/04 – 12/05 Data Collection			X				
CRT 02-059 **(1)**	Event Notification	Translation of CRC Screening Guidelines to Practice - An Intervention	Humphrey, Linda	NCI	$249,000	$498,000	3/03 – 9/06 Data Collection				X	X		
Goal 2: Reduce variation and improve CRC screening rates														
IIR 04-042-2 **(2)**	SCREEN (Veteran Survey)	Assessing and Addressing Patient Colorectal Cancer Screening Barriers	Partin, Melissa	VA HSR&D	$50,346	$762,216	7/05 – 12/07 Start-Up Activities		X	X				
(2)	CRC Decision Tool	Colorectal Cancer Decision Tool	Provenzale, Dawn; Pignone, Michael	AHRQ	$82,500	$82,500	3/05 – 9/06 Started Data Collection				X	X		
Goal 3: Improve the quality of cancer care and reduce suffering and mortality among CRC patients in VA														
(3)	Cancer Registry	Tumor Registry	Dominitz, Jason	ERIC	$25,000	$25,000	01/05 – 12/05 Data Collection						X	

Project ID and (Center Goal)	Project Label	Project Title	Principal Investigator	Type / Source	Current FY Amount	Total Amount	Start – End Dates and Status	QUERI Activity Code						
								1	2	3	4	5/6	M	C
CRS 02-164 **(3)**	CanCORS	Colorectal Cancer Care Outcomes Research and Quality Surveillance Data System (CanCORS)	Provenzale, Dawn & van Ryn, Michelle	NCI/HSR&D	$400,500	$4,695,660	7/03 – 6/08 Start-up Activities/Data Collection	X	X	X			X	X
Other QUERI-Relevant Projects														
Goal 1: Improve the referral, show, and completion rate for CDE following a positive FOBT, FS, or DCBE														
XNV 21-063 ***(1)***	*Race & CDE*	*Race and Screening Follow-Up*	*Fisher, Deborah*	*ACG Clinical Research Award*	*$10,000*	*$10,000*	*7/03 – 6/04 Completed*	*X*		*X*				
(1)	Diagnostic Delay	Diagnostic Delay in Colorectal Cancer: This is a CanCORS ancillary study that would collect additional data to determine patient, provider, and institutional delays to the diagnosis of colorectal cancer.	Fisher, Deborah & Provenzale, Dawn	VA HSR&D (VA CanCORS)	No Budget – coming out of CanCORS funds	No Budget	1/06 -- TBD	X						
Goal 2: Reduce variation and improve CRC screening rates														

Project ID and (Center Goal)	Project Label	Project Title	Principal Investigator	Type / Source	Current FY Amount	Total Amount	Start – End Dates and Status	QUERI Activity Code						
								1	2	3	4	5/6	M	C
IIR 02-010 **(1,2)**	Literacy & Race Barriers	The Impact of Health Literacy on Racial Differences in Cancer Stage at Presentation	Ferreira, M. Rosario (Co-investigator); Provenzale, Dawn (Co-investigator) (Arozullah, Ahsan – PI)	IIR VA HSR&D	$224,059	$969,736	4/03 – 3/07 Data Collection	X		X				
RO1 CA86424 -01A2 ***(2)***	Patient /Provider Ed.	*Health Belief Model-Directed Intervention For Colorectal Cancer Screening*	*Ferreira, M. Rosario (Co-investigator); Provenzale, Dawn (Co-investigator) (Bennett, Charles – PI)*	*NIH*	*$293,730*	*$857,114*	*7/01 – 6/04 Data Analysis*				*X*			
NIH PAR 04-036 **(2)**	Self Report Validation	Colorectal Cancer Screening Measurement in a Veteran Population	Fisher, Deborah	NIH	$100,000	$236,500	1/05 – 1/07 Startup & Data Collection			X			X	
CRI 03-153 **(2)**	Health Literacy	Determining the Prevalence of Health Literacy Among Veterans	Griffin, Joan	IIR VA HSR&D	n/a	$997,256	10/03 –12/05 Data Analysis	X		X			X	
K07 CA90359 01 **(2)**	Screening Service Utilization	Delivery and Utilization of Colorectal Cancer Screening	Ling, Bruce	NIH/NCI	Not available.	$100,328	8/01 – 7/06 Data Collection			X				X

Project ID and (Center Goal)	Project Label	Project Title	Principal Investigator	Type / Source	Current FY Amount	Total Amount	Start – End Dates and Status	QUERI Activity Code						
								1	2	3	4	5/6	M	C
PERT-5 ***(2)***	*CRC Sc & Endo*	*Coordinated Endoscopic Colorectal Cancer Screening*	*Ling, Bruce (Co-investigator); (Weissfeld – PI)*	*CDC*	*Not available.*	*$888,150*	*10/1/01 - 9/30/05 Data Analysis*				*X*	*X*		*X*
R01 CA97263 **(2)**	Stages of Change Intervention	Tailored Interactive Intervention to Increase CRC Screening	Vernon, Sally	NIH/NCI	Not available.	$1,787,445	9/02 – 8/07 Data Collection				X	X		
(2)	VHA Practice Assessment Survey	VHA Practice Assessment Survey	Yano, Elizabeth	OQP & ORD	$170,000	$170,000	01/05 – 12/05 Survey Design		X					
CA89544 **(3)**	Elder Care Gaps	Colorectal Cancer Care Variation in Vulnerable Elderly	Dominitz, Jason	NCI	$373,186	$1,066,640	01/01 – 12/05 Manuscripts	X		X				
(3)	Quality and Cost of Colon Cancer Care in VA and Medicare	Quality and Cost of Colon Cancer Care in VA and Medicare	Hynes, Denise ; Provenzale, Dawn	VA HSR&D (VA CanCORs)	No budget (coming from CanCORs funding)	No budget	TBD			X				
Goal 4: Monitor, advise, and encourage clinical research to expand the pool of evidence-based clinical practices, evidence-based intervention strategies, identification of at-risk populations, and high burden clinical conditions.														
Cross cutting projects														

Project ID and (Center Goal)	Project Label	Project Title	Principal Investigator	Type / Source	Current FY Amount	Total Amount	Start – End Dates and Status	QUERI Activity Code						
								1	2	3	4	5/6	M	C
CCDOR Provider **(1-4**)	Provider Attitudes	Providers perceptions of disparities and interventions approaches	Burgess/ van Ryn	CCDOR (HSR&D) LIP	$52,304	$59,691	8/03-2/06 Data Collection & Data Analysis			X	X		X	
5P01 HS10864 -04 **(1,2,3)**	HDMAA	Health Disparities in Minority Adult Americans (Project 2)	Ling, Bruce (Co-investigator); (Ricci/Trauth – Co-PIs)	AHRQ	Not available.	$1,067,002	9/01 – 8/05 Data Collection			X				X

Table 4. Planned Projects

Project ID and (Center Goal)	Project Label	Project Title or Description	Principal Investigator	Type / Source	Status	QUERI Activity Code						
						1	2	3	4	5/6	M	C
Goal 1: Improve the referral, show, and completion rate for CDE following a positive FOBT, FS, or DCBE												
(1)	CDE Capacity	Estimate of ideal GI staffing needed to support prompt CDE following positive screen.	Kochevar, Laura	Core LIP	Recruiting staff				X			
		Other QUERI relevant projects – Non Core – Listed Below										
Goal 1: Improve the referral, show, and completion rate for CDE following a positive FOBT, FS, or DCBE												
NIH PAR-04-036 **(1)**	Vietnam Vets	Vietnam Veterans and Colorectal Cancer Screening (1/05-12/09)	Vernon, Sally	NIH	Other: Approval pending	X		X				
Goal 2: Reduce variation and improve CRC screening rates												
(2)	Screen Adherence	Impact of Adherence on Outcomes of Colorectal Cancer Screening	Inadomi, John M.	VA HSR&D	Other: Revising IIR proposal	X		X				X
(2)	CBOC	Intervention to promote recommendation of colorectal cancer screening	Bennett, Charles	VA HSR&D	Proposal to be submitted December 1				X			

Table 5. Staff, Executive Committee and Affiliates Roster

Center Leadership								
Name	**Degrees**	**QUERI Role**	**Institution/Facility**	**Street Address**	**City, State, Zip**	**Telephone**	**Fax**	**E-mail**
Kochevar, Laura	PhD	Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-5355	612-727-5699	Laura.Kochevar@va.gov
Bond, John	MD	Co-Clinical Coordinator	Minneapolis VAMC (111D)	One Veterans Drive	Minneapolis, MN 55417	612-467-4100	612-725-2248	John.Bond@va.gov
Provenzale, Dawn	MD, MSc	Co-Clinical Coordinator	Durham VAMC (152)	508 Fulton Street Building 16, Room 70	Durham, NC 27705	919-286-2287	919-416-5839	prove002@mc.duke.edu
Powell, Adam	PhD, MBA	Implementation Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis MN 55417	612-467-4364	612-727-5699	Adam.Powell@va.gov
Koets, Nancy	PsyD	Associate Implementation Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis MN 55417	612-467-1148	612-727-5699	Nancy.Koets@va.gov
Leger, Suzanne	MPA	Administrative Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-2785	612-727-5699	Suzanne.Leger2@va.gov
Executive Committee Membership								
Name	**Degrees**	**QUERI Role**	**Institution/Facility**	**Address**	**City, State, Zip**	**Telephone**	**Fax**	**E-mail**
Dominitz, Jason A.	MD, MHS	Executive Committee	VA Puget Sound Health Care System, Seattle Division (111GI)	1660 S. Columbian Way	Seattle, WA 98108-1597	206-764-2285	206-764-2232	Jason.Dominitz@va.gov
Enderle, Mark A.	MD	Executive Committee	VISN 16 Chief Medical Officer	1600 E. Woodrow Wilson Dr., 3rd Fl, Suite A	Jackson, MS 39216	601-364-7906	601-364-7996	Mark.Enderle@va.gov
Helfand, Mark	MD	Executive Committee	Section of General Internal Medicine (P3-MED)	3710 SW US Vets. Hosp. Road	Portland, OR 97207	503-494-4277	503-494-4551	helfand@ohsu.edu
Nilan, Lynnette	PhD,	Executive	Office of Quality &	810 Vermont	Washingto	202-273-	202-273-	Lynnette,Nilan@v

	MN	Committee	Performance, 10Q, Rm. 875C	Ave. NW.	n, DC 20420	8919	9097	a.gov
Parkerton, Patricia	PhD	Executive Committee	Department of Health Services, UCLA School of Public Health	650 Charles Young Drive South, Room 41-295D, Box 951772	Los Angeles, CA 90095	310-825-2926	310-825-3317	parkert@ucla.edu
Partin, Melissa	PhD	Executive Committee	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-3841	612-727-5699	Melissa.Partin@va.gov
Patel, Thakor	MD, MACP	Executive Committee	Dept. of Veterans Affairs Medical Services (111A)	810 Vermont Ave. NW.	Washington, DC. 20420	202-273-8490	202-283-9142	tgpatel@2k.va.gov
Shannon, Jackilen	PhD	Executive Committee	Portland VA Research Foundation	3710 SW US Veterans Hospital Road	Portland, OR 97201	503-220-8262 x57285	503-273-5367	shannoja@ohsu.edu
van Ryn, Michelle	PhD, MPH	Executive Committee	U. of Minn. Dept. of Family Medicine & Comm. Health	925 Delaware St. SE. #220	Minneapolis, MN. 55414	612-625-9105	612-624-3037	vanry001@umn.edu
Vernon, Sally	PhD	Executive Committee	School of Public Health, University of Texas-Houston, Health Science Center	Box 20036	Houston, TX 77225	713-500-9760	713-500-9750	svernon@sph.uth.tmc.edu
Virnig, Beth	PhD, MPH	Executive Committee	University of Minnesota Box 729 Mayo	420 Delaware Street SE	Minneapolis, MN 55455	612-624-4426	612-624-8448	virni001@tc.umc.edu
Yano, Elizabeth M.	PhD, MSPH	Executive Committee	Center for the Study of Healthcare Provider Behavior, VA Greater Los Angeles Health Care System	16111 Plummer Street	Sepulveda, CA 91343-2036	818-895-9449	818-895-5838	Elizabeth.Yano@va.gov
Other Key Center and Project Staff								
Name	**Degrees**	**QUERI Role**	**Institution/Facility**	**Address**	**City, State, Zip**	**Telephone**	**Fax**	**E-mail**

Ash, Joan S.	PhD	Affiliate Investigator	Department of Medical Informatics and Clinical Epidemiology, Oregon Health and Science University	3181 SW Sam Jackson Park Road	Portland, OR 97239-3098	503-494-4540	503-494-4551	ash@ohsu.edu
Burgess, Diana	PhD	Affiliate Investigator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4673	612-727-5699	Diana.burgess@va.gov
El-Serag, Hashem	MD, MPH	Affiliate Investigator	Houston Veterans Affairs Medical Center (39A)	2002 Holcombe Blvd.	Houston, TX 77030	713-794-8840		Hashem.El-Serag@.va.gov
Etzioni, David	MD	Affiliate Investigator	University of California Los Angeles (UCLA)	911 Broxton Ave, 3rd Floor	Los Angeles, CA 90024	310-794-2257	310-794-3288	detzioni@metnet.ucla.edu
Ferreira, M. Rosario	MD, MAPP	Affiliate Investigator	Feinberg School of Medicine Northwestern University	676 N. St. Clair Street Suite 1400	Chicago, IL 60611	312-695-4497	312-695-3999	mr-ferraira@northwestern.edu
Fisher, Deborah	MD, MHS	Affiliate Investigator	Durham VAMC (152)	508 Fulton Street, Bldg 16	Durham, NC 27705	919-286-6936	919-416-5836	fish034@mc.duke.edu
Friedmann-Sánchez, Greta	PhD	Implementation Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4376	612-727-5699	Greta.Friedemann-Sanchez@va.gov
Gralnek, Ian	MD, MSHS	Affiliate Investigator	UCLA Center for the Study of Digestive Health Care Quality and Outcomes	11301 Wilshire Blvd	Los Angeles, CA 90073	310-268-3256	310-794-2908	igralnek@mednet.ucla.edu
Griffin, Joan	PhD	Affiliate Investigator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4232	612-725-2118	Joan.griffin2@va.gov
Hannum Rose, Julia	PhD	Affiliate Investigator	Case Western Reserve University School of Medicine	2500 MetroHealth Drive	Cleveland, Ohio 44109	216-778-2303	216-778-5935	Julia.Rose@va.gov
Harris, Linda	PhD	Affiliate Investigator	Health Communication and Informatics Research Branch, Behavioral Research Program Division of Cancer Control	6130 Executive Boulevard EPN-4087A, MSC 7326	Bethesda, Maryland 20892-7326	301-496-7984	301-480-2198	harrisl@mail.nih.gov

			and Population Sciences National Cancer Institute					
Hoffman, Richard	PhD	Associate Professor	UMD Behavioral Science 241SMed	1035 University Drive	Duluth, MN 55812	218-726-7144	218-726-8874	rhoffman@umn.edu
Imperiale, Thomas F.	MD	Affiliate Investigator	Roudebush VA Medical Center Health Services Research and Development (11H)	1481 West 10th Street	Indianapolis, IN 46202	317-554-0000 x2887	317-554-0114	imperial@hsrd.va.iupui.edu
Inadomi, John M.	MD	Affiliate Investigator	VA Ann Arbor Healthcare Systems (111-D)	2215 Fuller Road	Ann Arbor, MI 48105	734-761-7981	734-761-7549	jinadomi@umich.edu
Lambert, Michael			Greater Los Angeles Health Care System		Los Angeles, CA 90073	310-268-3564		michael.lambert@va.gov
Lazovich, DeAnn	PhD	Affilate Investigators	Div of Epidemiology, University of Minnesota	Suite 300, 1300 S 2nd St	Minneapolis, MN 55454	612-624-1818	612-624-0315	lazovich@epi.umn.edu
Ling, Bruce	MD, MPH	Affiliate Investigator	VA Pittsburgh Center for Health Equity Research and Promotion	230 McKee Place Suite 600	Pittsburgh, PA 15213	412-688-6000		lingbs@upmc.edu
Morrison, Vicki	MD	Affiliate Investigator	Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4135		morri002@umn.edu
Myers, Jennifer								Jlm17@iupui.edu
Nelson, Douglas	MD	Affiliate Investigator	Minneapolis VAMC (111D)	One Veterans Drive	Minneapolis, MN 55417	612-467-4100	612-725-2248	nelso195@tc.umn.edu
Osarogiagbon, Raymond	MD	Affiliate Investigator	Amarillo VA Health Care System (504/111)	6010 Amarillo Blvd West	Amarillo, TX 79106	806-356-3809	806-356-3795	raymond.osarogiabon@med.va.gov
Patten, Sonia	PhD	Affiliate Investigator	Macalester College	1600 Grand Avenue	Saint Paul, MN 55105	651-696-6588	651-696-6116	patten@macalester.edu
Pignone, Michael	MD, MPH	Affiliate Investigator	University of North Carolina at Chapel Hill	5039 Old Clinic Bldg	Chapel Hill, NC 27599	919-966-2276		Michael_pignone@med.unc.edu
Rockwood, Todd	PhD	Affiliate Investigator	Division of Health Services Research, Policy & Administration University of Minnesota	420 Delaware St SE Mayo Mail Stop 729	Minneapolis, MN 55455	612-625-3993	612-624-2196	rockw001@tc.umn.edu
Rudolph, Rebecca								rebecca.rudolph@va.gov

Sayer, Nina	PhD	Research Coordinator	Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VAMC	One Veterans Drive	Minneapolis, MN 55417	612-467-4623	612-727-5699	Nina.sayer@med.va.gov
Soban, Lynn	RN, MPH	Affiliate Investigator	VA HSR&D COE for the Study of Healthcare Provider Behavior	16111 Plummer Street (152) Building 25	Sepulveda, CA 91343	818-891-7711 x9954	818-895-5838	lynn.soban@med.va.gov
Wallace, James		Project Staff	Portland VAMC	3710 SW US Veterans Hospital Rd, PO Box 1034	Portland, OR 97207	503-220-8262 x54794	503-494-4551	wallacej@ohsu.edu
Walter, Louise	MD	Affiliate Investigator	VA Medical Center – 181G	4150 Clement St.	San Francisco, CA. 94121	415-221-4810 X3052	415-750-6641	Louise.Walter@med.va.gov

Figure 1: VHA Programs/ Entities Influencing Clinical Practices & Outcomes for Colorectal Cancer		
ACA	Advanced Clinical Access	Advanced Clinic Access is a concept mandated by VA Central Office as a response to the large waiting lists and long waiting times for outpatient clinics. The goal is to develop alternatives (group visits, after hour visits, etc.) to the traditional clinic visit in order to reduce the waiting time and see more patients.
CIDER	Center for Information Dissemination and Education Resources	CIDER's mission is to improve the health and care of veterans by disseminating important HSR&D findings and information to policy makers, managers, clinicians, and researchers throughout VA and the broader health care community. The goal of CIDER's dissemination and education efforts is to support and encourage the use of research evidence in policy and practice decisions aimed at improving the quality of patient care and outcomes.
DUSHOM	Deputy Under Secretary for Health for Operations and Management (10N)	The Deputy Under Secretary for Health for Operations and Management (10N) oversees field operations and provides broad and general operational direction and guidance to the 21 VISN directors. Network Program Support Staff provide guidance to the field and consultation to 10N in key program areas including clinical, planning, quality management, and other program areas.
EES	Employee Education System	The EES is VHA's education and training organization for employees. By offering multiple opportunities and forums for learning about evidence-based care and quality improvement, EES serves as an important resource for influencing clinical practice.
EPRP	External Peer Review Program	The review program is charged with developing clinical guidelines within the VA. They play an important role for the CRC QUERI since they continually develop guidelines and regulations for clinical practice by which we need to stay on top of.
GIAG	GI Advisory Group	The function of the GI Field Advisory Committee is to advise the Chief Consultant Medical/Surgical Services and review any policy decisions or give advice and feedback on quality of care issues, new technologies etc.
GPRA Council	Government Performance Results Act Council	The council oversees the implementation of the GPRA. The intent of the GPRA is to improve planning functions, program performance measurement, assessment of program outcomes, and program management in order to improve service to veterans.
HERC	Health Economics Resource Center	The Health Economics Resource Center (HERC) is a national center located in Menlo Park, CA that assists VA researchers in assessing the cost-effectiveness of medical care, evaluating the efficiency of VA programs and providers, and conducting high-quality health economics research.
NCGPC	National Clinical Guidelines Practice Council	The role of the NCGPC is to function in a coordinating role for the adoption, implementation and evaluation of clinical practice guidelines throughout the system.

NRAG	Nursing Research Advisory Group	The Nursing Research Advisory Group establishes, implements, and evaluates the strategic plan for nursing research in the VA. The group advises the National Nursing Executive Council (NNEC) on issues and activities related to nursing research.
PCS	Office of Patient Care Services	The Office of Patient Care Services houses VHA's clinically-related programs that serve to support the actual delivery of patient care services in the field. It integrates professional knowledge and practice skills into policy, planning, and system-wide development of patient care guidelines, critical pathways, and practice parameters. Specifically, the CRC QUERI is associated with the acute care SHG Oncology program within PCS.
OQP	Office of Quality Performance	Through its work in clinical guideline development, performance measurement, accreditation and credentialing, OQP plays a major role in influencing quality improvement in VHQ treatment settings. OQP also co-funds translation health systems research.
USPSTF	US Preventative Services Task Force	An independent panel of experts in primary care and prevention that systematically reviews the evidence of effectiveness and develops recommendations for clinical preventive services.
ViReC	VA Information Resource Center	VIReC provides an infrastructure of database and informatics experts, customer service, expert advice, information products, and Web technology to VA researchers and others. Its mission is to improve the quality of VA research that uses databases and information systems.

Figure 2. Colorectal Cancer QUERI Research/Implementation Pipeline: Core Projects

	Clinical Research				Implementation Research				Implementation Policy
Colorectal Cancer Process	**Identify Best Practices**	**Identify Performance Gaps**	**Identify Root Causes**	**Develop Interventions**	**Develop Programs and Tools**	**Phase I Pilot Projects**	**Phase II Demonstration**	**Phase III Regional Rollout**	**Policy/National Implementation**
GOAL II: SCREENING			**SCREEN:** Assessing and addressing patient CRC screening barriers *07/05-12/07* **Partin** **Screening Colonoscopy Barriers:** Provider interview study assessing acceptability of direct screen colonoscopy *8/03-12/05* **Burgess & Kochevar**			**CRC Decision Tool:** Pilot study testing use of patient-directed CRC decision aid in VA system *3/05-9/06* **Provenzale & Pignone**			
GOAL I: COMPLETE DIAGNOSTIC EVALUATION (CDE)			**Key Informant:** Interview study of CDE policies & procedures *8/04-12/05* **Kochevar**		**CRC SAFE**: Colorectal cancer screening assessment and surveillance data system *7/02-6/05* **Kochevar** **CDE Capacity:** Estimate of ideal GI staffing needed to support prompt CDE *Dates TBD* **Kochevar** **Endoscopy Non-Completion Risk:** Empirical predictors of endoscopy non-completion *8/03-09/05* **Kochevar** **Colo-prep**: Effect of a system for determining method of preparation for colonoscopy *09/05-09/08* **Imperiale**		**C4 (CRC SAFE II) Phase 1:** Performance measures across the CRC care continuum *07/05-09/06* **Kochevar**		
				GIVER (Telehealth): Home telehealth reminders to improve colonoscopic prep and reduce no-show *10/05-06/07* **Kochevar** **Event Notification:** Using an event notification system to improve CDE *3/03-9/06* **Helfand**					
GOAL III: TREATMENT & SURVEILLANCE			**Cancer Registry:** Retrospective review of existing data to look at CRC diagnosis and tumor stage *1/05-12/05* **Dominitz**				**C4 (CRC SAFE II) Phase 2**: Performance measures across the CRC care continuum *01/06-09-06* **Kochevar**		
		CanCORS: Quality surveillance data system; See related CanCORS projects in abstracts in App. C *7/03-6/08* **Provenzale & van Ryn**							

Planned projects

Ongoing projects

Completed projects

Figure 3. Colorectal Cancer QUERI Research/Implementation Pipeline: Non-Core Projects

	Clinical Research				Implementation Research				Implementation Policy
Colorectal Cancer Process	**Identify Best Practices**	**Identify Performance Gaps**	**Identify Root Causes**	**Develop Interventions**	**Develop Programs and Tools**	**Phase I Pilot Projects**	**Phase II Demonstration**	**Phase III Regional Rollout**	**Policy/National Implementation**
GOAL II: SCREENING	**VHA Practice Assessment Survey:** Quality improvement by measuring organizational traits of VA systems *1/05-12/05* **Yano**	**CRC Screen Adherence:** Impact of adherence on outcomes of CRC Screening *Dates TBD* **Inadomi** **Screening Service Utilization:** Delivery and Utilization of CRC screening *8/01-7/06* **Ling** **CRC Sc & Endo:** Coordinated endoscopic CRC screening *10/01-9/05* **Weissfeld** **Literacy & Race Barriers:** Impact of health literacy on racial differences in cancer stage *4/03-3/07* **Ahsan** **Vietnam Vets:** Vietnam Veterans & CRC Screening *1/05-12/09* **Vernon & Partin**	**Patient/Provider Education:** Health Belief Model-Directed Intervention for CRC Screening *7/01-6/04* **Bennett** **Health Literacy:** Determining the prevalence of health literacy *10/03-12/05* **Griffin** **Race & CDE:** Race and screening follow-up *7/03-6/04* **Fisher**	**Stages of Change Intervention:** Tailored interactive intervention to increase CRC screening *9/02-8/07* **Vernon** **CBOC:** Intervention to Promote Recommendation of Colorectal Cancer Screening in community based clinics *Dates TBD* **Bennett**	**Self-Report Validation:** Screening behavior in the Vet population *1/05-1/07* **Fisher**				
GOAL I: COMPLETE DIAGNOSTIC EVALUATION									
GOAL III: TREATMENT AND SURVEILLANCE		**Elder Care Gaps:** CRC care variation in vulnerable elderly *1/01-12/05* **Dominitz**	***Provider Attitudes:** Perceptions of disparities and intervention approaches *8/03-2/06* **Burgess** ***HDMAA:** Health Disparities in Minority Adult Americans *9/01-8/05* **Ricci/Trauth**						

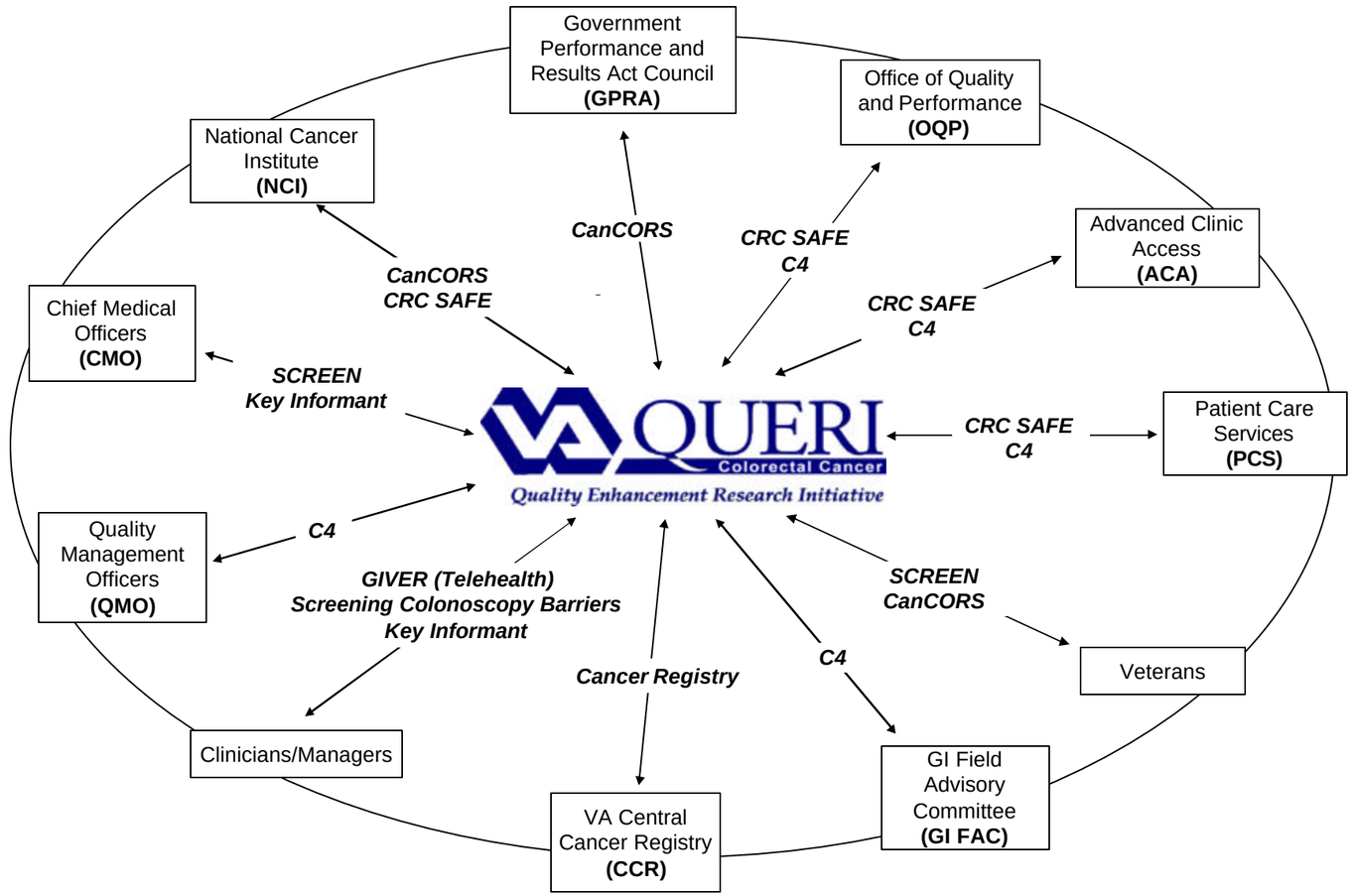
Planned projects

Ongoing projects

Completed projects

* indicates cross cutting projects

Figure 4.
CRC-QUERI Collaborative Relationships
(Wiring Diagram)



VA QUERI Colorectal Cancer
Quality Enhancement Research Initiative

April 2005 Volume 1 Issue 1

CRC QUERI AFFILIATES FORUM

PRESENTING THE AFFILIATE FORUM

We're excited to present the first issue of the CRC QUERI Affiliate Forum! Given the distance that separates us, we're hoping that this quarterly newsletter will improve communication and facilitate greater collaboration.

We will be emailing the Forum to all QUERI affiliated researchers on a quarterly basis. If you have information that you would like to see included in the newsletter, please call Suzanne Leger at (612) 467-2785 or email her at Suzanne.Leger2@med.va.gov.

Look to the Forum for information on upcoming QUERI related events and news.

RESEARCH SEMINARS TO BE HELD QUARTERLY

All QUERI affiliates are invited to attend the QUERI research seminars, which will be held quarterly beginning May 2005. Each seminar will feature a presentation by a QUERI investigator. The first seminar will occur on Tuesday, May 24, 2005 at 2:00 - 3:30 PM EDT.

The purpose of the research seminars will be to disseminate information gleaned from completed projects or to provide a forum for investigators who are in the formative phases of a project to receive feedback. We expect that the atmosphere of the seminars will be informal and collegial. We'd like to hear from investigators who are interested in presenting the findings of their projects, or who would like to share ideas for future studies.

We are happy to have Greta Friedemann-Sanchez, PhD from the Minneapolis VAMC as the initial presenter in the seminar series. Greta will present "Gender Barriers to Colorectal Cancer Screening," based on the results of a study that Greta and Joan Griffin, PhD conducted during Greta's post-doctoral fellowship.

Study subjects were 27 female and 43 male veterans between 50 and 75 who receive primary care at the Minneapolis VAMC. The participants consented to focus group interviews, with the groups being stratified by gender and screening status. Group interviews focused upon veterans' beliefs and attitudes about colorectal cancer screening.

The Research Seminar will be conducted via **HSR&D's** WebEx, which is a website devoted to hosting interactive group meetings. Using your computer you can see slides and type in questions to the presenter. VANTs lines provide two-way audio communication with the presenter. Watch for our email invitation coming out in May to participate in Dr. Friedemann-Sanchez's seminar.

Affiliates Forum is a quarterly publication of the CRC QUERI

Research Coordinator: Laura Kochevar, PhD

Clinical Coordinators: Dawn Provenzale, MD and John Bond, MD

VA Medical Center (152/2E), One Veterans Drive, Minneapolis MN 55417

Telephone: (612) 467-2785 FAX: (612) 727-5699

Publication and Project Information

Given the amount of work and last-minute rush that has been associated with completing the Strategic Plan each year, we'd like to obtain project and publication information in a timely, non-hurried manner.

You'll soon be receiving forms via email for you to use to tell us about your recent publications and project. Forms will be returned to Suzanne Leger at the Minneapolis VAMC. Please feel free to contact Suzanne at (612)-467-2875 if you have any questions.

We look forward to reporting back what everyone has been up to in future editions of the Affiliate Forum. Thanks for your continued support!

QUERI Investigators Present at HSR&D National Meeting

Several CRC QUERI investigators conducted workshops and/or presented papers and/or posters at the 2005 Health Services Research and Development National Meeting which was held in Baltimore, MD from February 16 through 18.

Elizabeth Yano, PhD, of the VA Greater Los Angeles Health Care System, participated in a panel discussion during the workshop, "Building the VA Business Case for Quality Improvement and Health Services Research." The workshop informed investigators of the importance of communicating the business case for quality improvement/health services research to health care managers, whose partnership is vital to the implementation of evidence-based projects, and yet whose motivations and needs significantly differ from those of health researchers.

Laura Kochevar, PhD, of the Minneapolis VAMC conducted a workshop entitled, "Advanced Implementation Research Issues." Laura presented a model of "The Implementation Research Continuum" which consisted of various basic and applied research activities from health psychology, public health intervention studies, operations research, and health care organizational change literature. Special attention was given to the 6-step QUERI process and to 4-phase models of clinical trial and implementation research.

Papers were presented by the following investigators:

- Nina Sayer, PhD; "Changes in Symptoms, Functioning, and Service Utilization After PTSD Claim Determinations"; Minneapolis VA Medical Center
- Diana Burgess, PhD; "What Do Practicing Providers Think About Racial/Ethnic Disparities in Healthcare?"; Minneapolis VA Medical Center
- M. Rosario Ferreira, MD; "Process Evaluation in an Intervention to Improve Colorectal Cancer Screening'; VA Chicago Health Care System

The following investigators presented posters:

- Lynn Soban, RN, MPH of the VA HSR&D Center for Excellence in Sepulveda California, "The Role of the Local Health Care Environment in VA Care: Does Managed Care Matter?"
- Greta Friedemann-Sanchez, PhD of the Minneapolis VAMC, "Research and Educational Implications on Colorectal Cancer Screening Perceptions."
- Elizabeth Yano, PhD of the VA Greater Los Angeles Health Care System, "Practice and Patient Level Factors Predicting Colorectal Cancer Screening Rates."

Breaking News!

Veteran Survey Funded

One of our major core research efforts, “Assessing and Addressing Patient Colorectal Cancer Screening Barriers,” has been funded by VA HSR&D and is scheduled to begin in July 2005. Led by Melissa Partin, the project will survey a national sample of veterans to improve our understanding of how patient knowledge, attitudes, preferences and environmental support affect participation in colorectal cancer screening. Special attention will be given to understanding factors related to health disparities and gathering actionable information to support future screening promotion interventions.

GIVER Study Funded

Without appropriate diagnostic follow-up, screening for CRC affords us nothing. And yet, recent estimates indicate that more than half of veterans fail to receive timely diagnostic follow up (1). The mean time to colonoscopy following a positive fecal occult blood test has been estimated at 276 days (2).

While some of the performance gap is attributable to referral issues, much of the problem is associated with successful completion of scheduled exams. Issues include difficulty scheduling an appropriate time, no shows, late cancellations, difficulty with colon prep or other adherence with appointment requirements.

The GIVER study, funded by VA HSR&D, will examine whether we can alleviate these problems through educational and motivational messages delivered to patients via interactive voice response (IVR) telephony. GIVER, stands for Gastroenterology Interactive Voice Education and Reminders. Principal investigator Laura Kochevar has requested extra credit points for thinking up the acronym.

Patients will be randomized to receive usual care, scheduling facilitation and appointment reminders via IVR, or scheduling facilitation, appointment reminders and access to pre-recorded prep education and motivational messages. The program will begin in FY2006 and run for 2.5 years

(1)Etzioni et al, ‘Colorectal Cancer Screening and Follow-up in the VHA’ and (2) Fisher et al, ‘Evaluation of a Positive Screening Fecal Occult Blood Test’ both HSR&D 2004 National Meeting and under review for publication.

New Partnership Formed

CRC QUERI is working in close partnership with the Office of Quality and Performance (OQP), Advance Clinic Access (ACA), VISN, Nursing and Medical Center leadership on a new partnership entitled “The CRC Collaborative Quality Assessment and Improvement Pilot Project”.

Details of the partnership are not yet final; a full report will be given in the next Affiliate Forum. What we do know is that lessons learned from two QUERI projects: the CRC Screening and Follow-up Event (CRC-SAFE) data system and the Cancer Care Outcomes Research and Surveillance System (CanCORS), are being transformed into performance monitoring and feedback programs for VA facilities.

As a rapid-response pilot demonstration we will be constructing performance profiles for 20 volunteer facilities. The profiles will cover key processes along the entire colorectal cancer care continuum from symptom presentation or screening through treatment. There will be both quantitative analysis of process intervals (such as time from positive screen to GI consult) and event rates (the percent of patients with positive screens referred for consult) and qualitative analysis of appropriateness of treatment.

You may have heard of this exciting partnership through the QMIC, ACA conferences or from your CMO. Project leads Dawn Provenzale and Laura Kochevar have been very busy with the partners, pulling together a quality program and sharing information with key stakeholders.

VA QUERI Colorectal Cancer
Quality Enhancement Research Initiative

July 2005 Volume 1 Issue 2

CRC QUERI AFFILIATES FORUM

Research Seminar Features Dr. Lynn Soban

Lynn Soban, PhD will be our featured QUERI research seminar speaker on Tuesday, August 23, 2005 at 2:00 – 3:30 PM EDT. Dr. Soban will present "The Effect of Area HMO Market Share on Colorectal Cancer Screening Within the VA Health Care System".

Although the level of managed care market share has been shown to influence the structure and functioning of other health care systems, no studies have examined whether performance with VA health care facilities is influenced by the local HMO market share. Dr. Soban's cross-sectional study uses data from: Interstudy, Area Resource File, the VA External Peer Review Program, and the 1999 VA Survey of Primary Care Practices. Patient-level analysis, using generalized estimating equations, examines the effect of managed care market share on receipt of colorectal cancer screening.

Dr. Soban is a Postdoctoral Fellow at the Center for the Study of Healthcare Provider Behavior, VA Greater Los Angeles HSR&D Center of Excellence, Sepulvelda, VA Ambulatory Care Center & Nursing Home. She obtained her Ph.D. in Health Services at UCLA's School of Public Health in 2005. Her research interests involve organizational predictors of health care quality, organizational change processes, and research translation. Dr. Soban's current research projects involve: identifying the organizational influence on quality; and organizational changes related to improving inpatient nursing care and patient outcomes.

Researchers Needed: *Development of a Simulation Model*

CRC QUERI is interested in developing a simulation model to address endoscopic capacity within the VA. We are interested in capturing the effects of: demand for all GI services; primary care utilization and CRC screening rates; screening modality; surveillance and diagnostic colonoscopy demand; resources such as provider and staff FTE, procedure, recovery room and other material resources; and patient adherence and prep.

The goals are to estimate the clinical FTE and material resources necessary to address current and expected demand for endoscopy services and to estimate the potential effectiveness of interventions designed to maximize capacity utilization. A limited amount of start-up funding is available.

The CRC QUERI research coordinating center will work with interested researchers to procure more substantial funding. If you are interested, or if you know any researchers who may be interested, please contact Laura Kochevar, Research Coordinator, at (612) 467-5355 or Laura.Kochevar@med.va.gov.

Affiliates Forum
is a quarterly publication of the CRC QUERI

Research Coordinator: Laura Kochevar, PhD
Clinical Coordinators: Dawn Provenzale, MD
John Bond, MD
Implementation Research Coordinator: Adam Powell, PhD

VA Medical Center (152/2E),
One Veterans Drive,
Minneapolis MN 55417

Get to Know Our Affiliates *Thomas Imperiale, MD*

"Quantifying Risk to Target Screening Colonoscopy" is a 5-year study sponsored by NIH, Eli Lilly, and Marathon Oil that is being conducted by QUERI affiliate Tom Imperiale, MD. Dr. Imperiale is a professor of medicine at Indiana University School of Medicine and is also associated with the Roudebush VAMC HSR&D where he is an adjunct faculty member.

Dr. Imperiale's project aims to identify risk factors that predict the occurrence of colorectal cancer and advanced precancerous polyps so that colorectal cancer screening recommendations can be tailored according to the needs of individual patients. Primary care doctors, according to Dr. Imperiale, want to know what to do for a particular patient, and find the many screening options available to be "cumbersome."

Toward the goal of identifying risk factors, the study, which began in August 2004, will establish a clinical/specimen repository from 2,000 to 2,500 individuals who are employees, retirees, or their dependents of Eli Lilly or Marathon Oil and who have undergone colonoscopies offered to them by those companies. The repository will include data/specimens collected from persons with normal screens to individuals whose screens indicated small polyps to patients who were found to have advanced cancer. Dr. Imperiale will apply for funding to analyze the specimens.

Dr. Imperiale will analyze epidemiological data from 4,000 to 5,000 persons including information about lifestyle factors, personal medical history, extensive family history, BMI, and body weight. Hopefully, data analysis will result in a system that stratifies the risk for colorectal cancer and advanced pre-cancerous polyps, delineating "high risk" and "low-risk" subgroups. It's hoped that the study will result in the development of an algorithm or a prediction rule to answer the following:

- Who needs to be screened?
- When should screening be utilized?
- What type of screening is most appropriate for the individual?

Currently, Dr. Imperiale is mentoring Charles Kahi, MD in a VA multi-site project that examines the yield and outcomes of colonoscopy in elderly patients. The goal of the project is to identify conditions under which re-screening or surveillance colonoscopy would be unnecessary for elderly persons. In other words, the study aims to discover under what conditions elderly patients should be brought back for colonoscopies as well as subgroups of patients that should not undergo colonoscopies.

In the future, Dr. Imperiale hopes to study how the process of colon preparation prior to endoscopic procedures can be tailored to the individual patient. He feels that the current "one size fits all" cleansing procedure has a negative impact on patient satisfaction, patient adherence to endoscopic procedures, the patient's ability to properly prepare for the procedure, and resource utilization. Dr. Imperiale feels that the topic of preparation for colonoscopy has been overlooked by clinicians and researchers interested in digestive diseases.

New Online Journal to be Launched

Focuses on Implementation of Evidence-Based Clinical Practice

The VA Health Services Research and Development Service and the University of Newcastle upon Tyne, UK are launching a new online open-access journal focusing on the study of methods to accelerate the implementation of evidence-based clinical practices in routine healthcare settings. "Healthcare Quality Improvement and Implementation Science," is to be published by BioMed Central. Current plans call for HSR&D's CIDER (Center for Information Dissemination and Education Resources) to host the journal's editorial office.

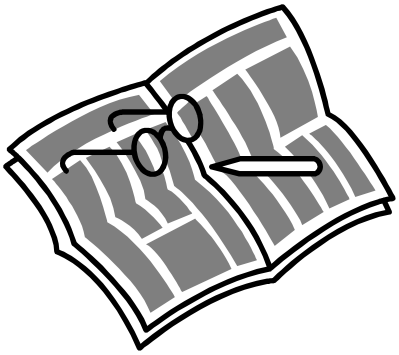
This journal will fill an important need that is close to the heart of QUERI: getting detailed implementation evidence out to users as soon as possible. The journal will include research reports, methodological and conceptual pieces and detailed case studies of implementation efforts. Both successes and "failures" are welcomed. Is anything a "failure" when we learn from it? We think not!

We encourage all QUERI affiliates to consider submitting articles for peer review, or being available as a reviewer. Ideal papers would be built around implementation lessons and details that you know are important, but never quite fit in traditional journals. For more information, see http://www.hsrd.research.va.gov/for_researchers/journal-information.cfm.

Remember: This is <u>your</u> forum!

Want to know who else is doing research in your area? Looking for co-investigators? Want to debate an issue? Post a QUERI query in the Forum. Call or email Administrative Officer, Suzanne Leger at (612) 467-2785 Suzanne.Leger2@med.va.gov.

Recent Affiliate Publications



Several QUERI affiliates have had articles published recently in a variety of journals. To keep you abreast of the wide reach of our affiliates' work, we list them here. Affiliates' first and last names appear in italic.

Diana Burgess (In press). What motivates employees to transfer knowledge outside their work unit? Journal of Business Communication.

Diana Burgess, *Michelle van Ryn* & Fu, S. (2004). Making Sense of the Provider Role in Promoting Disparities. Journal of General Internal Medicine, 19, 1154-9.

Rudolph, R., *Jason Dominitz,* Lampe, J., Levy, L., Qu, P., Lampe, P., Bronner, M., Potter, J. (2005). Risk factors for colorectal cancer in relation to number and size of aberrant crypt foci in humans. Cancer Epidemiology, Biomarkers and Prevention, 14(3):605-8.

McDonnell, W., *Jason Dominitz*. (2004). CT colonoscopy. Gastroenterology, Aug, 127(2):693. (Letter to the editor).

Deborah Fisher, Dougherty, K., Martin, C., Galanko, J., *Dawn Provenzale*. (2004). Race and colorectal cancer screening: A population-based study in North Carolina. North Carolina Medical Journal, 65, 12-15.

Deborah Fisher, Martin, C., Galanko, J., Sandler, R.S., Noble, M.D., *Dawn Provenzale.* (2004). Risk factors for advanced disease in colorectal cancer. American Journal of Gastroenterology, 99: 2019-2024.

Sultan, S., *Deborah Fisher,* Voils, C., Kinney A.Y., Sandler, R.S., *Dawn Provenzale.* (2004). The impact of functional support on health related quality of life in colon cancer patients. Cancer, 101:2737-2743.

Jason Dominitz, Boyko, E.J., Koepsell, T.D., Heagerty, P.J., Maynard, C., Sporledger, J.L., *Thomas Imperiale*. VA Cooperative Study Group 488. (2005). Elevated prevalence of hepatitis C in users of United States Veterans Medical Centers. Hepatology, 41:88-96.

LeBlanc, J.K., Ciaccia, D., Al-Assi, M.T., McGrath, K., *Thomas Imperiale,* Tao, L.C., Vallery, S., DeWitt, J., Sherman, S., Collins, E. (2004). Optimal number of EUS-guided fine needle passes needed to obtain a correct diagnosis. Gastrointestinal Endoscopy, 59:475-81.

Thomas Imperiale. Risk factors for advanced colorectal neoplasia: From evidence to application. Commentary on Lieberman, D.A., Prindiville, S., Weiss, D.G., Willett, W. for the VA Cooperative Study Group 380. Risk factors for advanced colonic neoplasia and hperplastic polyps in asymptomatic individuals. Journal of American Medical Association (2003). 290:2959-2967. Evidence-Based Gastroenterolgy (2004). 5(3): 86-87.

Kieff, B., Eckert, G.J., *Thomas Imperiale.* (2004). Is there an association between diverticulitis and colonic neoplasia? A colonoscopic study. American Journal of Gastroenterology, 99:2007-2011.

Kahl, C.J., *Thomas Imperiale.* (2004). Do aspirin and non-steroidal anti-inflammatory agents cause a false positive fecal blood test? American Journal of Medicine, 117:837-41.

Thomas Imperiale, Ransohoff, D.F., Itzkowitz, S.H., Turnbull, B.A., Ross, M.E. (2004). Comparison of a stoll DNA panel with hemoccult II for noninvasive screening for colorectal neoplasia in an average risk population. 351:2704 -2714.

Thomas Imperiale. (2005). Can computed tomographic colonography become a "good" screening test? Annals of Internal Medicine, 142: 669-70.

Lynn Soban, Elizabeth Yano. The impact of primary care resource sufficiency on prevention performance. (2005). Journal of Ambulatory Care Management, 28(3):231-243.

Implementation Research Coordinator Hired!

Adam Powell, PhD, was recently hired as the Implementation Research Coordinator and will begin working with the CRC QUERI on August 8, 2005.

Dr. Powell received his PhD in Social Psychology from the University of Kansas and has conducted extensive evaluation research with healthcare systems and non-profit organizations. He has also been involved in marketing research.

Look for more information about Dr. Powell in the October issue of the Affiliates Forum.

Clinician Letter Series Slated to Begin

In August, the CRC QUERI will initiate the Clinician Letter Series; a series of letters emailed quarterly to QUERI clinicians that pertain to clinical issues.

Our wish is that the Letter Series will be timely and pertinent. Therefore, we need your suggestions as to topics of interest. As always, send your input to our Administrative Officer, Suzanne Leger, at Suzanne.Leger2@med.va.gov (612) 467-2785 or contact Laura Kochevar at Laura.Kochevar@med.va.gov.

Get to Know Our Affiliates *Deborah Fisher, MD*

Deborah Fisher, MD, MHS is an Assistant Professor of Medicine at Duke University School of Medicine, and is a Research Associate at the Center for Health Services Research in Primary Care at the Durham VA Medical Center where she is also a clinical gastroenterologist. Prior to her current appointment, Dr. Fisher was a fellow in the Division of Gastroenterology at Duke University Medical Center for three years, during which she completed a two year Health Services Research and Development fellowship at the Durham VA Medical Center.

Dr. Fisher is currently conducting a cross-sectional questionnaire study with comparison to medical record review ("Colorectal Cancer Screening in a VA Population") that aims to validate a self-report colorectal cancer screening instrument, the Colorectal Cancer Screening Behavior Questionnaire (CRCSBQ). The instrument, which is designed to detect current colorectal cancer screening participation, was originally developed by the National Cancer Institute work group. The clinically relevant endpoints are whether patients have ever been screened and are current with screening for colorectal cancer via one of the four standard colorectal cancer screening modalities: barium enema, flexible sigmoidoscopy, FOBT, and/or colonoscopy.

Participating patients are black and white males and females who are 50 years of age or older and are enrolled in primary care at the Durham VA or the Minneapolis VA. In part one of the study, a number of patients will complete cognitive interviews about the CRCSB, with the total number of patients dependent upon the number of iterations of cognitive interviews needed. In part two of the study, the CRCSBQ and a demographics questionnaire are being administered to 200 (total) veterans at the two sites. Also, medical record data will be abstracted from the VA electronic medical record, non-VA medical records, and Medicare claims data. CRCSBQ responses will be compared to medical record data. Point estimates and 95% confidence intervals will be calculated for the concordance, relative sensitivity, specificity and report-to-records ratio of the CRCSBQ to detect current colorectal cancer screening status compared to medical record review.

The CRCS Behavior Questionnaire has the potential to enhance screening research as to secular trends in colorectal cancer behaviors, to identify barriers and facilitators to screening, to detect at-risk populations within the VA and to serve as an outcome for interventional studies that will improve adherence to colorectal cancer screening guidelines. The questionnaire will also provide survey researchers with the ability to gather data without accessing patient medical records. The long-term goal of the study is to contribute to the development of a resource of cancer screening measures with known reliability and validity across multiple settings and populations.

Dr. Fisher noted that her affiliation with the CRC QUERI has been very helpful for this project in providing data support as well as in securing Medicare data. Similarly, she indicated that her collaboration with the CRC QUERI has provided her an "amazing opportunity" to work with various investigators who share her research interests and who provide feedback and support.

Upcoming Research Seminars

Be sure to mark your calendars!

August 23, 2005: Lynn Soban, PhD, "The Effect of Area HMO Market Share on Colorectal Cancer Screening Within the VA Health Care System" 2:00 PM - 3:30 PM EDT

November 2005: Laura Kochevar, PhD, and Dawn Provenzale, MD, "Update on Colorectal Cancer Care Collaborative (C4)"

February 2006: Michael Pignone, MD, "CRC Screening Decision Aids"

Let Us Hear From You!

If you would like to share your news with your QUERI colleagues, please call or email Administrative Officer, Suzanne Leger at (612) 467-2785 Suzanne.Leger2@med.va.gov

We'd love to hear what you're doing!

VA QUERI Colorectal Cancer
Quality Enhancement Research Initiative

November 2005 Volume 1 Issue 3

CRC QUERI AFFILIATES FORUM

SCREEN Study Gets Underway

One of the CRC QUERI's newest projects, Assessing and Addressing Patient Colorectal Cancer Screening Barriers, locally known as the *SCREEN* (Survey of ColoRectal Cancer Education and Environmental Needs) *Study* began funding in July 2005. Melissa Partin, PhD, is the Principal Investigator on this 2.5 year patient survey study designed to inform the development of effective patient-directed interventions to increase colorectal cancer (CRC) screening among veterans age 50 and older.

The specific primary objectives of this study are to: (1) estimate the relative effect of patient cognitive (knowledge, attitudes, and self-efficacy), environmental (social network and medical care characteristics), and background (demographics, health status, prior screening experiences) factors on CRC screening behavior; (2) identify factors that contribute to any disparities in CRC screening behavior by race/ethnicity or other patient characteristics; and (3) identify from these analyses priority population subgroups and priority factors to target in future interventions.

This is an observational study based on a nationally representative, cross-sectional mailed survey of 4,030 male and female veterans age 50-75 that have had one or more primary care visits at a VA Medical facility in the past two years. Currently, the SCREEN Study team is actively working on refining the questionnaire. The mailed patient questionnaire, will consist primarily of previously validated measures and will include measures of self-reported CRC screening behavior; patient demographic, health, social network and medical care characteristics; CRC screening knowledge, preferences, attitudes, social norms and self-efficacy; and attitudes toward medical care. Additional measures of organizational-level CRC screening practices from a recently completed VA facility survey will be linked to the patient survey. A pilot test of the questionnaire, including a validation of self-reported screening behavior, will be conducted on approximately 200 veterans in early February 2006. Mailing of the production survey is scheduled to begin mid-summer 2006.

The products anticipated from this study (recommendations regarding the most fruitful patient and system directed strategies for promoting CRC screening in the VA, recommendations for developing culturally competent and sensitive CRC screening promotion strategies, and validated measures of CRC screening behavior and knowledge) will greatly facilitate future efforts to monitor and improve CRC screening rates in the VA.

Article submitted by Krysten Halek, MA, Project Manager, Minneapolis VAMC. For more information about this study contact Krysten at krysten.halek@va.gov.

Research Seminar Series to Feature Dr. Laura Kochevar

Laura Kochevar, PhD will be our featured QUERI research seminar speaker on Tuesday, November 22, 2005 at 2:00 – 3:30 PM EDT. Dr. Kochevar will present an overview of "The CRC Collaborative Quality Assessment and Improvement Pilot Project".

The Colorectal Cancer Care Initiative is a joint effort with HSR&D, OQO, ACA, DUSHOM and PCS. It is designed to identify methods for assessing and improving colorectal cancer diagnosis and treatment. Successful measurement strategies identified in this pilot project will be made available to all VHA facilities, and successful improvement strategies will be shared throughout the VA system. Dr. Kochevar is the Research Coordinator for the CRC QUERI. She received her PhD in Experimental Psychology/Medical Decision Making from the University of Minnesota in 1994.

Affiliates Forum
is a quarterly publication of the CRC QUERI

Research Coordinator: Laura Kochevar, PhD
Clinical Coordinators: Dawn Provenzale, MD
John Bond, MD
Implementation Research Coordinator: Adam Powell, PhD

VA Medical Center (152/2E),
One Veterans Drive,
Minneapolis MN 55417

Get to Know Our Affiliates *Adam Powell, PhD*

Adam Powell, PhD, was recently hired as Implementation Research Coordinator and has been working at the QUERI since August 8, 2005. The task of the Implementation Research Coordinator is to be responsible for the oversight of QUERI implementation efforts. For example, the IRC works with investigators to design studies so that the results are applicable in the field. The IRC also designs implementation programs based on recent research findings.

Dr. Powell received his PhD in Social Psychology from the University of Kansas and also has an MBA in marketing research. Prior to coming to the QUERI, Dr. Powell worked in the private sector for 10 years, where he led marketing research efforts primarily focused on the identification and development of new product ideas. He believes that there is similarity between new product development and implementation research, as both situations require target individuals (whether they be patients, providers or consumers) to embrace behavior change. In the long run, the determination of which innovations are accepted or rejected is based both on the cognitive perception of benefit and the innovation's association with positive affect.

The central theme of Dr. Powell's research interests involves the application of theories of social influence and social emotion to induce long-term behavior change. Much of his previous work has examined how the framing of communications can affect emotional responses such as empathy and guilt and how these responses can in turn affect attitudes and behaviors. Recently, Dr. Powell has also become interested in the implications underlying patient choice; most specifically the affect that multiple options have upon the process of decision making.

The goals of researchers and end users of healthcare innovations are not always aligned. As CRC QUERI's Implementation Research Coordinator, Dr. Powell sees serving as an intermediately between these two stakeholders as an important aspect of his job. Good implementation research must contribute to theory and be publishable but it also must identify process improvements that are cost effective, practically implementable, and provide positive outcomes to providers as well as patients. Dr. Powell is looking forward to the challenge of bringing these two perspectives more closely together.

Colorectal Cancer Care Collaborative Kicks Off

Noting the need to reduce the time from positive screening test to diagnosis and increase the use of guideline concordant care, the CRC-QUREI, VA Office of Quality and Performance, and VA Advanced Clinic Access (ACA) Initiative have partnered to conduct the Colorectal Cancer Care Collaborative (C4). C4 includes improvement teams representing one facility from each of the 21 VISNs. Successful strategies developed by the teams will be disseminated VA wide.

The first face-to-face leaning session for the collaborative was held September 22-23 in Las Vegas. The focus of this session was phase 1 of the collaborative – concentrating on reducing the period of time from positive CRC screening or patient presentation to diagnosis. Phase 2, which focuses on improving quality of treatment, will begin next year.

Team members, collaborative coaches, and C4 planning committee members discussed issues including the state of the art in CRC diagnosis, ACA quality improvement principles, rapid cycle improvement techniques, mapping the care process, measuring clinic demand, and use of measures developed by the CRC QUERI coordinating center. There were also extensive opportunities for team members to learn from each other's experiences.

Laura Kochevar, Ph.D., CRC QUERI Research Coordinator, and Dawn Provenzale, MD, MS, CRC QUERI Co-Clinical Coordinator, are leading the QUERI C4 effort. Both were on the faculty for the face-to face leaning session.

Article submitted by George L. Jackson, PhD, Research Health Scientist, Durham VAMC.

CRC-QUERI Clinical Brief #1:

Virtual Colonoscopy

*The **VA CRC-QUERI** (Colorectal Cancer Quality Enhancement Research Initiative) is dedicated to the translation of research discoveries and innovations into system improvements in order to reduce the incidence, late detection, suffering, and mortality from colorectal cancers among all veterans. This is the first in our new series of Clinical Briefs. Each brief will address a question that we have heard from numerous clinicians. The answers are brought to you by **Drs. John Bond**, clinical co-coordinators of CRC-QUERI.*

What is the potential of virtual colonoscopy as a screening tool at the VA?

The rapidly evolving field of virtual colonoscopy (VC), also referred to as CT colonography, offers a great deal of promise as a means of increasing the VA's capacity for highly accurate CRC screening while also reducing the risk of complications. In VC, data from a rapid helical CT scanner is utilized to construct two and three dimensional images of the colon. These images are analyzed by a radiologist to identify cancerous growths and premalignant polyps.

As with optical colonoscopy, the patient must perform bowel prep. Additionally, patients may be asked to ingest a contrast agent that is used to tag and subtract any remaining bowel contents from processed images. (Advances in fecal tagging technology may eventually eliminate the need for bowel cleansing.)

Immediately prior to scanning, the colon is insufflated with air using a rectal catheter. This can cause some discomfort. However, the procedure takes only a few minutes, requires no sedation, and is generally found to be preferable overall to conventional colonoscopy by patients[1]. Additionally, because VC is minimally invasive, the risk of complications is less than with endoscopic procedures.

Although a recent meta-analysis found VC's overall sensitivity and specificity for detecting clinically significant polyps to approach the detection rate of optical colonoscopy, VC sensitivity was highly variable across studies (range: 48% to 100%)[2]. Much of this variance may be due to the types of scanners, software, analytic techniques employed. Among the seven studies that used multi-slice scanners, sensitivity was uniformly high at 95%. The two studies in the meta-analysis that utilized fly-through software technology, which simulates the viewing experience of optical colonoscopy, obtained a combined sensitivity of 99%.

The American College of Radiology Imaging Newtork (ACRIN) is currently conducting a 15-site trial that may help to clarify VC's near-term viability as a screening tool. (Protocol available at http://www.acrin.org/6664_protocol.html.) In addition to examining the relative accuracy of both VC and optical colonography, this study has been designed to compare different image analysis techniques and to assess variation between radiologists in the interpretation of cases. Preliminary results are expected to be available in the fall of 2006.

Analysis of the ACRIN study will include cost-effectiveness modeling, addressing another key hurdle in VC implementation. Any such economic assessment will need to incorporate the cost of endoscopies following all positive VC screens. It is important to note, however, that this cost may be partially offset by the fact that VC occasionally identifies and leads to the early treatment of extracolonic health problems such as hepatic steatosis, gallstones and hernias.

If the findings of the ACRIN study warrant, VC may find its way on to the list of screening modalities recommended by the US Preventive Services Task Force and other organizations. While such recognition is likely to be several years away, it is not too early to begin considering the challenges associated with implementing VC screening at the VA.

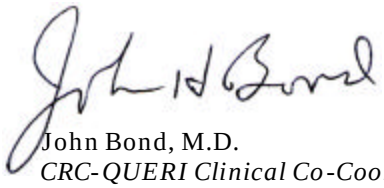
- In terms of capital needs, **4-slice scanners equipped with the appropriate VC software appear to be sufficient**[3]. More advanced scanners may offer slight improvements in fine imaging, but do not appear to significantly improve the probability of detecting the large polyps that are most likely to develop into cancer.

- The ACRIN study should provide some clarity on the minimum hardware and software needs for image analysis. A review of the studies to date, however suggest that for accuracy to be on par with optical colonoscopy, it may be necessary to use a **system that can quickly create 3D flythrough images**.

- A consensus on reader training requirements appears to be developing[4]. In addition to attending a **formal training course** many suggest readers **review a library of at least 50 training cases**.

- When setting up a VC screening program one should also consider the benefits of **coordinating efforts between radiology and gastroenterology**. If a system is in place that allows same day endoscopic polyp removal following a positive VC screen, the need for a second appointment and second bowel cleansing can be eliminated.

A variety of other issues in the areas of staffing, administration, and patient and provider education will also need to be addressed if virtual colonoscopy is to become a front line screening tool in the VA. However, when one considers the rapid advances that are being made in this young field and the current state of the evidence base, identifying these issues today may result in considerable future benefit.



John Bond, M.D.
CRC-QUERI Clinical Co-Coordinator

In the next CRC-QUERI Clinical Brief, we begin a series examining the steps required to successfully follow up a positive CRC screen (using fecal occult blood test, flexible sigmoidoscopy, or barium enema) with a complete diagnostic exam. The VA is well above the national average in screening age 50 plus average risk patients (74% at the VA compared to 44% national average). However, less than half of those screened positive successfully complete a colonoscopy exam within 6 months. By improving in this area, the VA can increase the efficacy of CRC screening programs and decrease the number of veterans whose lives are lost to colon cancer.

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[1] Svensson MH, Svensson E, Lasson A, Hellström M: Patient acceptance of CT colonography and conventional colonoscopy: prospective comparative study in patients with or suspected of having colorectal disease. *Radiology* 222(2):337-45, 2002.

[2] Mulhall BP, Veerappan GR, Jackson JL: Meta-analysis: computed tomographic colonography. *Ann Intern Med* 142:635-50, 2005.

[3] Pickhardt PJ, Taylor AJ, Johnson,GL, et al.: Building a CT colonography program: Necessary ingredients for reimbursement and clinical success. *Radiology* 235:17-20, 2005.

[4] Soto JA, Barish MA, Yee J: Reader Training in CT Colonography: How Much Is Enough? *Radiology* 237:26-27, 2005.

Tentative Schedule for Future CRC-QUERI Clinical Briefs

December, 2005:	**Virtual Colonoscopy (Issued)**
March, 2006:	**From Positive Screen to CDE: Minimizing Inappropriate FOBT Tests**
June, 2006:	**From Positive Screen to CDE: Provider Issues**
September, 2006:	**From Positive Screen to CDE: Patient Issues**
December, 2006:	**From Positive Screen to CDE: Systems Issues**
March, 2007:	**FOBT: What proportion should test positive?**
June, 2007:	**Aspirin in CRC prevention**
September, 2007:	**The use of clinical reminders in CRC screening and follow-up**
December, 2007:	**Group-prep for colonoscopy**

ATTACHMENT C – RESEARCH SEMINARS/WEBEX

Date	Speaker	Presentation Title	# of Ports Used & Est. Attendance
5/24/05	Greta Friedemann-Sanchez, PhD.	Gender Barriers to CRC Screening	34
8/23/05	Lynn Soban, PhD.	The Effect of Area HMO Market Share On CRC Screening within the VA Health Care System	41
11/22/05	Laura Kochevar, PhD.	The CRC Collaborative Quality Assessment And Improvement Pilot Project	77
2/06	Michael Pignone, MD.	CRC Screening Decision Aids	____

Portland VA Medical Center

Report Date: 11/29/2005
Positive FOBT Window: 6/1/03 to 5/31/04

The following measures consider individual veterans with negative or positive FOBT records in VISTA completed between 6/1/2003 and 5/31/2004 for selected clinics. The selected clinics were chosen by each participating facility, and are listed in the appendix.

The date of the earliest completed FOBT with a positive finding was selected as the index date for veterans with any positive test results. For veterans without a positive test result the date of the earliest completed FOBT with a negative result was selected as the index date.

Within the specified timeframe, 8,668 individual veterans met these criteria at the Portland VAMC. Among these 8,668 veterans, 518 veterans (5.98%) had at least one positive FOBT finding.

Overall, 124,999 individual veterans met these criteria at the 21 pilot facilities. Among these 124,999 veterans, 9,852 veterans (7.88%) had at least one positive FOBT finding.

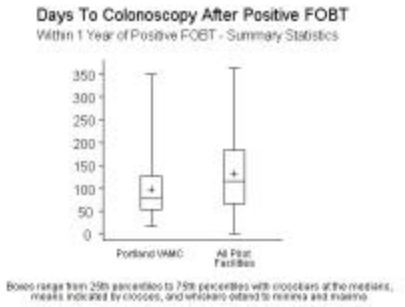
Subsequent colonoscopic follow-up to these positive FOBT findings is the focus of the following measures.

Core Measure 4: Proportion of veterans without colonoscopy performed or paid for by the VA within one year of date of positive FOBT.

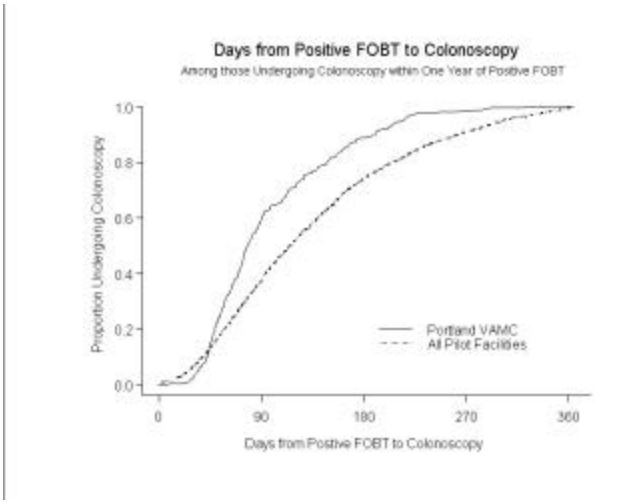
	Proportion	Veterans with Positive FOBT	Veterans without Colonoscopy Within One Year
Portland VAMC	47.68%	518	247
All Pilot Facilities	69.35%	9,852	6,832

Core Measure 1: Time from positive FOBT to colonoscopy performed or paid for by VA (for those with colonoscopy within 1 year)

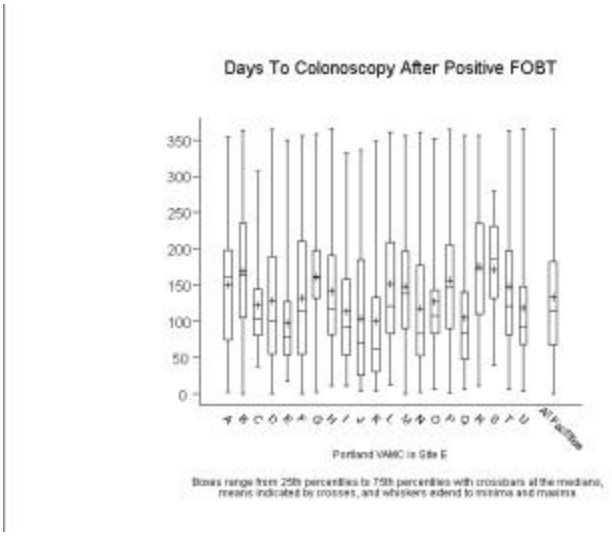
	Portland VAMC	All Pilot Facilities
Mean	98.19	133.12
Std Dev	58.82	84.58
Minimum	17	0
25th Percentile	54	67
Median	78	115
75th Percentile	127	183
Maximum	349	365



For those with positive FOBT undergoing colonoscopy within one year, the following graph displays the cumulative proportion undergoing colonoscopy over the first year.



The graph below presents summary statistics for time to colonoscopy for each of the individual pilot facilities.



Core Measure 3: Colonoscopy performed or paid for by VA within 90 days after positive FOBT (for those with colonoscopy within 1 year).

	Proportion	Veterans with Colonoscopy Within One Year	Veterans with Colonoscopy Within 90 Days
Portland VAMC	59.78%	271	162
All Pilot Facilities	37.98%	3,020	1,147

Supplemental Measure 7: Colonoscopic follow-up of positive FOBT.

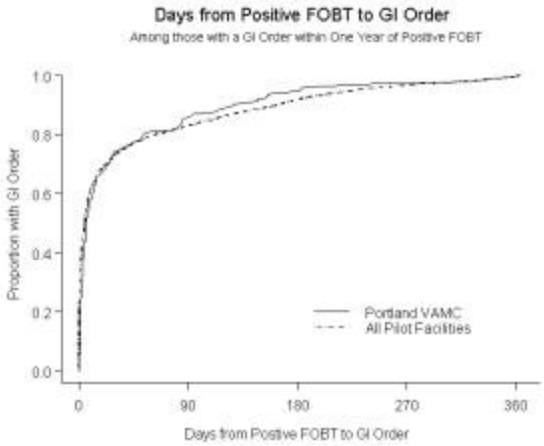
A. Proportion of veterans with a GI order date within one year of positive FOBT index date but prior to any colonoscopy performedor paid for by the VA for those veterans with a positive FOBT.

	Proportion	Veterans with Positive FOBT	Veterans with GI Order Within One Year
Portland VAMC	53.77%	518	278
All Pilot Facilities	39.28%	9,852	3,629

Summary statistics on time to GI order.

	Portland VAMC	All Pilot Facilities
Mean	38.26	41.77
Std Dev	71	78.08
Minimum	0	0
25th Percentile	2	1
Median	6	5
75th Percentile	34	36
Maximum	365	365

For those with a positive FOBT and a GI order within one year, the following graph displays the cumulative proportion with a GI order during that year.

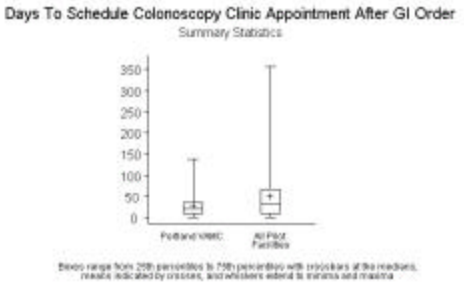


B. Proportion of veterans with an appointment created in a colonoscopy clinic following a GI order within one year of positive FOBT index date but prior to any colonoscopy performed by or paid for by the VA for those veterans with a positive FOBT.

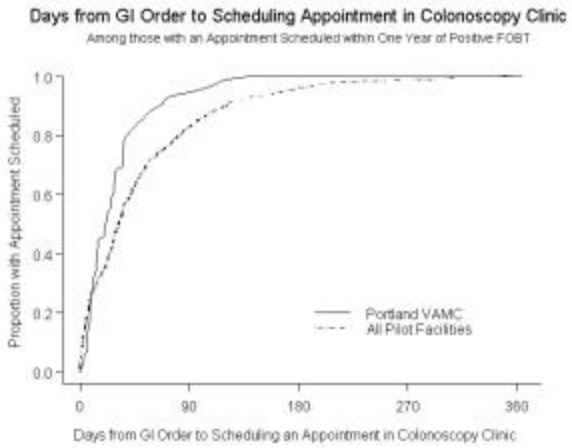
	Proportion	Veterans with GI Order	Veterans with Appointment Following GI Order Within One Year
Portland VAMC	27.34%	278	76
All Pilot Facilities	25.85%	3,629	938

Summary statistics for the time to date appointment was created in VISTA.

	Portland VAMC	All Pilot Facilities
Mean	29.17	49.61
Std Dev	28	57.12
Minimum	1	0
25th Percentile	9	9
Median	21	32
75th Percentile	36	67
Maximum	138	356

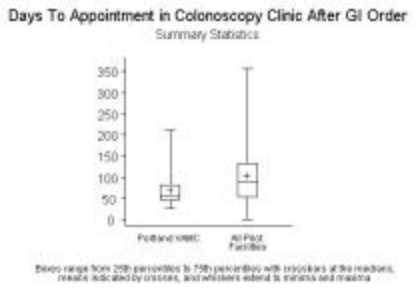


For those with a GI order within one year, the following graph displays the cumulative proportion with an appointment created in VISTA following an order during that year.

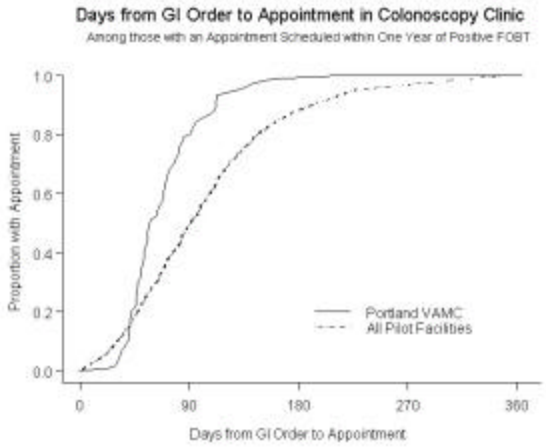


Summary statistics for the time to date of the appointment.

	Portland VAMC	All Pilot Facilities
Mean	69.11	102.86
Std Dev	33	66.97
Minimum	27	0
25th Percentile	47	54
Median	58	91
75th Percentile	82	133
Maximum	212	356



For those with a GI order within one year, the following graph displays the cumulative proportion with an appointment date following an order during that year.

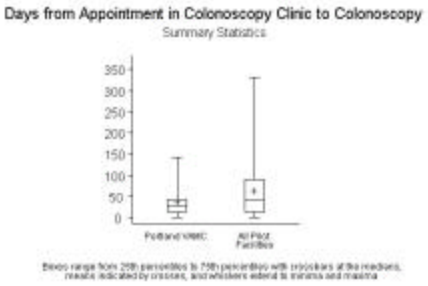


C. Proportion of veterans with a colonoscopy at the same facility as their FOBT following an appointment in a colonoscopy clinic within one year of positive FOBT index date among those veterans with a GI order and a positive FOBT.

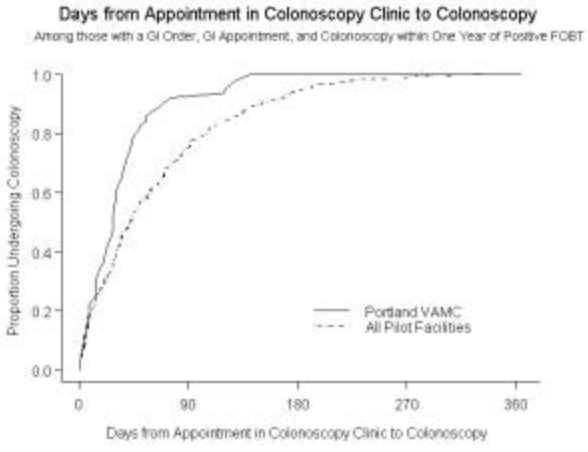
	Proportion	Veterans with GI Order and Colonoscopy Appointment	Veterans with Colonoscopy Following GI Order and Colonoscopy Appointment Within One Year
Portland VAMC	82.89%	76	63
All Pilot Facilities	41.04%	938	385

Summary statistics on time to colonoscopy.

	Portland VAMC	All Pilot Facilities
Mean	34.78	62.29
Std Dev	33	61.69
Minimum	1	1
25th Percentile	14	14
Median	28	42
75th Percentile	43	90
Maximum	141	330



For those with an appointment in a colonoscopy clinic following a GI order within one year, the following graph displays the cumulative proportion with a colonoscopy during that year.

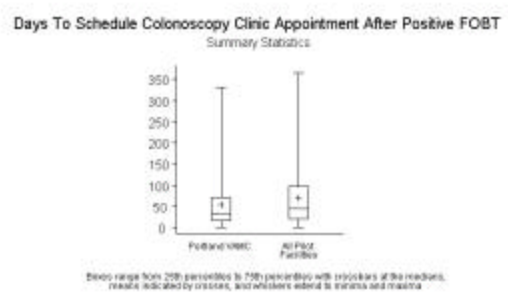


D. Proportion of veterans with a colonoscopy clinic created in VISTA within one year of positive FOBT index date among those veterans with a positive FOBT irrespective of any preceding GI order.

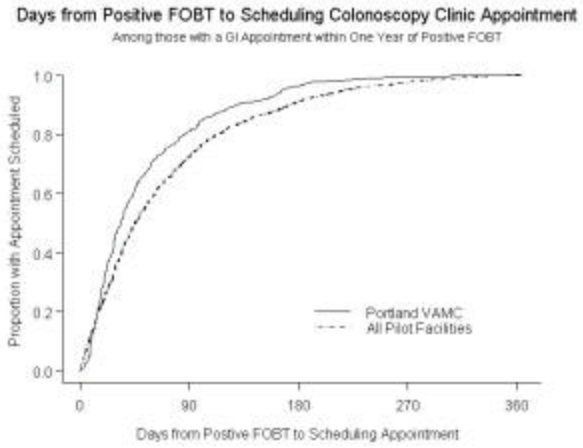
	Proportion	Veterans with Positive FOBT	Veterans with GI Appointment Within One Year
Portland VAMC	62.48%	518	323
All Pilot Facilities	31.05%	9,852	2,868

Summary statistics on time to colonoscopy clinic appointment created date.

	Portland VAMC	All Pilot Facilities
Mean	53.65	69.87
Std Dev	54	69.48
Minimum	0	0
25th Percentile	17	20
Median	34	45
75th Percentile	71	97
Maximum	331	365



For those with a positive FOBT and an appointment created in a colonoscopy clinic within one year, the following graph displays the cumulative proportion with a scheduled GI appointment during that year.

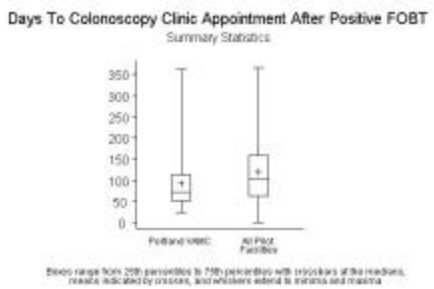


E. Proportion of veterans with a colonoscopy clinic appointment date within one year of positive FOBT index date among those veterans with a positive FOBT irrespective of any preceding GI order.

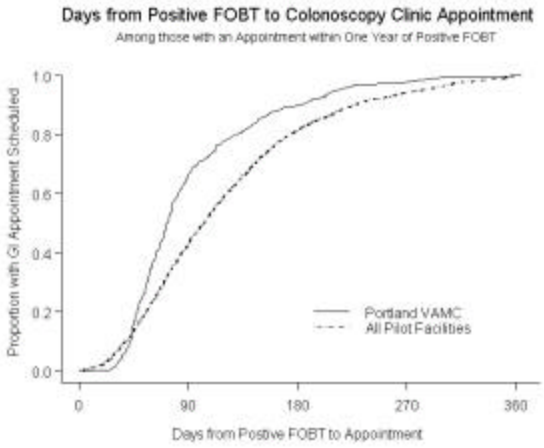
	Proportion	Veterans with Positive FOBT	Veterans with GI Appointment Within One Year
Portland VAMC	62.48%	518	323
All Pilot Facilities	31.05%	9,852	2,868

Summary statistics on time to the colonoscopy clinic appointment date.

	Portland VAMC	All Pilot Facilities
Mean	92.42	119.28
Std Dev	59	75.95
Minimum	25	1
25th Percentile	52	63
Median	73	103
75th Percentile	113	158
Maximum	362	365



For those with a positive FOBT and an appointment date in a colonoscopy clinic within one year, the following graph displays the cumulative proportion with a GI appointment date during that year.

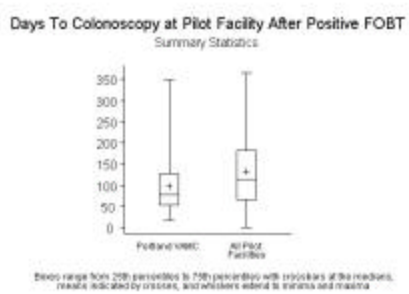


F. Proportion of veterans with a colonoscopy at the same facility as their FOBT within one year of positive FOBT index date irrespective of any preceding GI order or colonoscopy clinic appointment.

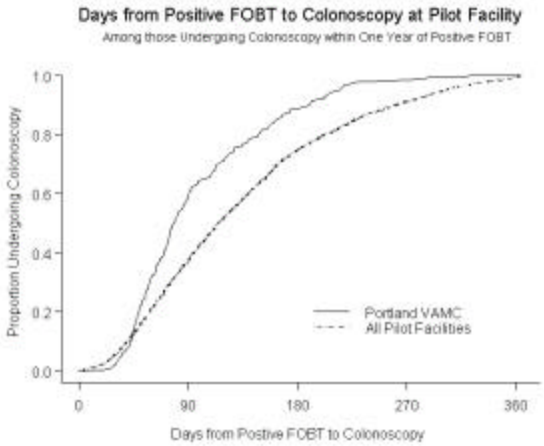
	Proportion	Veterans with Positive FOBT	Veterans with Colonoscopy Within One Year
Portland VAMC	52.42%	518	271
All Pilot Facilities	27.38%	9,852	2,529

Summary statistics on time to colonoscopy.

	Portland VAMC	All Pilot Facilities
Mean	98.19	132.91
Std Dev	59	83.75
Minimum	17	0
25th Percentile	54	67
Median	78	115
75th Percentile	127	181
Maximum	349	365



For those with a positive FOBT and a colonoscopy at the facility within one year, the following graph displays the cumulative proportion with a colonoscopy during that year.



VERSION 2: October 20, 2006

QUERI-Generated Core and Supplemental Baseline Measures for the CRC Learning Collaborative Phase I

Measure number	Measure name
Core-1	Time from positive FOBT to colonoscopy performed or paid for by VA (for those with colonoscopy within 1 year)
Core-3	Colonoscopy performed or paid for by VA within 90 days after positive FOBT (for those with colonoscopy within 1 year)
Core-4	Positive FOBT *without* follow-up colonoscopy within 1 year

Baseline Supplemental Measures

Measure Number	Measure Name
SM-7	Colonoscopic follow-up of positive FOBT
SM-7a	Time from positive FOBT to GI or colonoscopy order
SM-7b	Time from GI order to appointment in colonoscopy clinic after a positive FOBT
SM-7c	Time from appointment in colonoscopy clinic to colonoscopy at facility after GI order and positive FOBT
SM-7d	Time from positive FOBT to creation of appointment in colonoscopy clinic irrespective of GI order
SM-7e	Time from positive FOBT to date of appointment in colonoscopy clinic irrespective of GI order
SM-7f	Time from positive FOBT to colonoscopy at facility irrespective of GI order and appointment in colonoscopy clinic

Population for Core Measures

The population for the Core Measures includes all patients seen at one of the selected clinics with a positive FOBT test during the designated time period at your facility. *Follow-up may have been provided or paid for anywhere within the VHA system.*

Defined data elements (included in data definitions):
Selected clinic
FOBT-positive person

Core-1: Time from positive FOBT to colonoscopy performed or paid for by VA (for those with colonoscopy within 1 year)

Description: Number of days from positive FOBT to completion of colonoscopy for those with colonoscopy within designated time period. (*N.B.: For baseline data, this time period is one year*)

Comment: This is a measure of timeliness of colonoscopy completion *for those FOBT-positive persons who received colonoscopy*. For baseline measurement, the measure includes those who underwent colonoscopy within one year of the date of their first positive FOBT. Facilities may wish to use shorter time periods when using this measure to track the effectiveness of their improvement activities.

This measure does NOT provide information about FOBT-positive persons who had no colonoscopy performed or paid for by the VA within the designated period. These patients may have had colonoscopy after the designated time period, colonoscopy paid for by Medicare or other insurance within the designated time period, or no follow-up colonoscopy. See Core-4 for further discussion of this population.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation.

Continuous variables: Time (in days) from date of first positive FOBT test through date of completion of colonoscopy

Included population (for baseline measure):

- persons with positive FOBT 6/1/03-5/31/04; **AND**
- colonoscopy completed within one year; **AND**
- colonoscopy provided or paid for by VA.

Defined data elements (included in data definitions):
FOBT-positive date
FOBT-positive person
Colonoscopy completion date

Core-3: Colonoscopy performed or paid for by VA within 90 days after positive FOBT (for those with colonoscopy within 1 year)

Description: Percent of persons with positive FOBT undergoing colonoscopy within designated time period with completion of colonoscopy within 90 days (*N.B.: For baseline data, this time period is one year*)

Comment: This is an efficiency measure *for those FOBT-positive persons who received colonoscopy.* For baseline measurement, the measure includes those who underwent colonoscopy within one year of the date of their first positive FOBT or first presentation with CRC symptoms. Facilities may wish to use shorter time periods when using this measure to track the effectiveness of their improvement activities.

This measure does NOT provide information about FOBT-positive persons who had no colonoscopy performed or paid for by the VA within the designated period. These patients may have had colonoscopy after the designated time period, colonoscopy paid for by Medicare or other insurance within the designated time period, or no follow-up colonoscopy. See Core-4 for further discussion of this population.

There are no available data on the "appropriate" time interval between a positive FOBT and completion of the diagnostic evaluation. Ninety days has been selected arbitrarily for initial use in this measure; however, pilot facilities are encouraged to select a consensus "appropriate" time interval.

Improvement: An increase in rate

Denominator (for baseline measure):

- Persons with FOBT-positive date 6/1/03-5/31/04, **AND**
- colonoscopy completed within one year, **AND**
- colonoscopy provided or paid for by VA

Numerator (for baseline measure):

- Those in denominator with colonoscopy completion date within 90 days

Defined data elements (included in data definitions):
FOBT-positive date
FOBT-positive person
Colonoscopy completion date

Core-4: Positive FOBT *without* follow-up colonoscopy

Description: Percent of persons with positive FOBT *without* follow-up colonoscopy performed or paid for by the VA within one year.

Comment: This measure provides information about FOBT-positive persons who had no colonoscopy performed or paid for by the VA within the designated period. These patients may have had colonoscopy after the designated time period, colonoscopy paid for by Medicare or other insurance within the designated time period, or no follow-up colonoscopy. The number of patients falling into each of these (and other) categories will vary across medical centers.

To ascertain whether this core measure value represents an important opportunity to improve care, facilities must explore the reason for and the proportion of these patients that are getting colonoscopies outside the VA and those not getting colonoscopy at all. Approaches to doing this are discussed in Chapter 6 of this Improvement Guide.

Improvement: A decrease in rate

Denominator (for baseline measure):

- Persons with FOBT-positive date 6/1/03-5/31/04

Numerator (for baseline measure):

- Those in denominator *without* colonoscopy performed or paid for by the VA within one year

Defined data elements (included in data definitions):
FOBT-positive date
FOBT-positive person
Colonoscopy completion date

Supplemental Measures

SM-7: Colonoscopic follow-up of positive FOBT

SM-7a: Time from positive FOBT to order for colonoscopy or GI consult

Description: This measure assesses the time gap between the date a veteran is determined as having a positive FOBT from their lab result to the date they receive an order for a colonoscopy or a GI consult item. Time to order is measured as the number of days from the date of a positive FOBT test to colonoscopy/GI consult order date. This measure is assessed in those individuals whom have a positive FOBT test and a colonoscopy/GI consult order within 1 year of their positive FOBT date or prior to a colonoscopy performed or paid for by the VA.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. It applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans in denominator with colonoscopy/GI consult order date within one year of positive FOBT completion date but prior to any colonoscopy.

Defined data elements (included in data definitions):
FOBT positive date
FOBT positive person
Selected clinics
Colonoscopy/GI consult order item
Colonoscopy/GI consult order date

SM-7b: Time from GI order to appointment in colonoscopy clinic after a positive FOBT

Description: This measure assesses the time gap between the date of the colonoscopy/GI order for the veteran with a positive FOBT to the date they receive an appointment in a colonoscopy clinic. The items that are measured here include the date of which the appointment was created in the local VISTA system as well as the date of the actual appointment. Time to appointment created is measured as the number of days from the colonoscopy/GI consult order date to the date the appointment was made in VISTA. Time to appointment date is measured as the number of days from the colonoscopy/GI consult order date to the date the veteran is scheduled to appear in the colonoscopy clinic. This measure is assessed in those individuals whom have a positive FOBT test, a colonoscopy/GI consult order, and a colonoscopy clinic appointment within 1 year of their positive FOBT date or prior to a colonoscopy performed or paid for by the VA.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. It applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04 and a colonoscopy or GI order within one year of their positive FOBT test.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with colonoscopy/GI consult order date and an appointment in a colonoscopy clinic within one year of positive FOBT completion date but prior to any colonoscopy.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Colonoscopy/GI consult order date
Appointment Created Date
Appointment Date
Colonoscopy Clinic

SM-7c: Time from appointment in colonoscopy clinic to colonoscopy at facility after GI order and positive FOBT

Description: This measure assesses the time gap between the date of appointment in a colonoscopy clinic to the date the colonoscopy was completed in veterans who also have a colonoscopy/GI consult and a positive FOBT. Time to colonoscopy is measured as the number of days from the colonoscopy clinic appointment date to the date of the colonoscopy completion date at the participating facility. This measure is assessed in those individuals whom have a positive FOBT test, a colonoscopy/GI consult order, and a colonoscopy clinic appointment, and a colonoscopy procedure within 1 year of their positive FOBT.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. Applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04 and a colonoscopy/GI order, and a colonoscopy clinic appointment within one year of their positive FOBT test.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with colonoscopy/GI consult order date, an appointment in a colonoscopy clinic, and a colonoscopy completion date at the facility within one year of positive FOBT date.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Colonoscopy/GI consult order item
Colonoscopy/GI consult order date
Appointment Created Date
Appointment Date
Colonoscopy Clinic
Colonoscopy Completion Date

SM-7d: Time from positive FOBT to creation of appointment in colonoscopy clinic irrespective of GI order

Description: This measure assesses the time gap between the date a veteran is determined as having a positive FOBT from their lab result to the date they have an appointment in a colonoscopy clinic created in the local VISTA system. Time to appointment created is measured as the number of days from the positive FOBT date to the date the appointment was made in VISTA. This measure is assessed in those individuals whom have a positive FOBT test and a colonoscopy clinic appointment within 1 year of their positive FOBT date or prior to a colonoscopy performed or paid for by the VA.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. Applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with an appointment in a colonoscopy clinic within one year of positive FOBT completion date but prior to any colonoscopy.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Appointment Created Date
Colonoscopy Clinic

SM-7e: Time from positive FOBT to date of appointment in colonoscopy clinic irrespective of GI order

Description: This measure assesses the time gap between the date a veteran is determined as having a positive FOBT from their lab result to the date they are scheduled to appear for their appointment in a colonoscopy clinic. Time to appointment date is measured as the number of days from the positive FOBT date to the date the veteran is scheduled to appear for their appointment. This measure is assessed in those individuals whom have a positive FOBT test and a colonoscopy clinic appointment within 1 year of their positive FOBT date or prior to a colonoscopy performed or paid for by the VA.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. Applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with an appointment in a colonoscopy clinic within one year of positive FOBT completion date but prior to any colonoscopy.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Appointment Date
Colonoscopy Clinic

SM-7e: Time from positive FOBT to colonoscopy at facility irrespective of GI order and appointment in colonoscopy clinic

Description: This measure assesses the time gap between the date a veteran is determined as having a positive FOBT from their lab result to the date their colonoscopy is completed at the facility were they had their FOBT test. Time to colonoscopy is measured as the number of days from the positive FOBT date to the date the colonoscopy was completed. This measure is assessed in those individuals whom have a positive FOBT test and a colonoscopy completed datet within 1 year of their positive FOBT date.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. Applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with a colonoscopy at the facility within one year of the FOBT.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Colonoscopy Completion Date

Data definitions

Note: Terms in each definition which are *underlined and in italics* have their own data definitions.

Appointment created date
Appointment date
Colonoscopy Clinic
Colonoscopy completion date
Colonoscopy/GI Consult order item
Colonoscopy/GI Consult order date
Colonoscopy/GI Consult order completion date
FOBT Completion Date
FOBT Index Date
FOBT Record
FOBT Positive Date
FOBT-positive person
Selected clinic
Unique patient

Appointment created date: This is the date that the appointment record indicates the appointment was made. In VISTA it corresponds to field number 20 of the appointment multiple in the Patient file (i.e. ^DPT global).

Appointment date: This is the date that the appointment record indicates as the date of the appointment. In VISTA it corresponds to field number .001 of the appointment multiple in the Patient file (i.e. ^DPT global).

Colonoscopy Clinic: These are clinics at each facility associated with colonoscopies that were performed subsequent to positive FOBT. In VISTA this corresponds to field .01 in the Hospital Location file (i.e. ^SC global).

Colonoscopy completion date:

Core Measures: The earliest procedure date for a colonoscopy provided by any VA facility or paid for by the VA. Found in the National Patient Care Database (NPCD) data (Austin SAS datasets).

Supplemental Measures: The earliest procedure date for a colonoscopy provided by the pilot facility. Found in the NPCD data (Austin SAS datasets).

Colonoscopy/GI Consult order item: This is the orderable item at a given facility that corresponds to a colonoscopy or GI consult order. In VISTA it is the .01 field of the Orderable Items file (i.e. ^ORD(101.43 global). Appendix B represents the unique colonoscopy/GI order items by facility for positive FOBT veterans ordered in the 1 year subsequent to their FOBT date.

Colonoscopy/GI Consult order date: The date that an order for colonoscopy or GI consult (whichever is earliest) has started. In VISTA this corresponds to the start date field (i.e. field number 21) for item being ordered in Appendix B (i.e. field .1) in the Orders file (i.e. ^OR(100 global).

Colonoscopy/GI Consult order completion date: The date the colonoscopy or GI consult order is completed by the specialty clinic. If normal procedures are followed, this will be equal to or after the *colonoscopy/GI consult order date* and prior to or equal to the *appointment scheduled date* for a colonoscopy. In VISTA this corresponds to the completed field (i.e. field number 66) for item being ordered in Appendix B (i.e. field .1) in the Orders file (i.e. ^OR(100 global). Exclusions: orders that are discontinued or canceled (as indicated by the field 5 (i.e. Status) in the Orders file (i.e. ^OR(100 global).

FOBT Completion date: This is the date the report of the lab FOBT specimen was completed. In VISTA this corresponds to the .03 field of the chemistry multiple of the Lab Data file (i.e. ^LR global).

FOBT Index Date: For those with any indication of a positive FOBT result the index date was chosen to be the earliest completion date of *FOBT records* with positive results. For those with no indication of a positive test result the index date was chosen to be the earliest completion date of *FOBT records* with negative results.

FOBT Record: Any Lab Record of an FOBT test in VISTA Lab Package for which a negative result was recorded or for which an indication of a positive result could be found. Algorithms to find such indications of positive test results varied across sites but in general these indications of a positive test result were extracted from both the lab test result value code and the lab test comment fields. These records had to have a selected clinic as the requesting location for the FOBT. The algorithm used to identify positive lab results is presented in the Appendix A.

FOBT Positive Date: The *FOBT completion date* for the first *FOBT record* with a positive result for a person. Same date as the *FOBT index date* for an individual with any positive FOBT.

FOBT-positive Person : *individual with any record of a positive FOBT* processed by the lab in the designated time period with a hospital location code on the laboratory report from a *selected clinic* at the pilot facility.

Selected clinic: Clinics were selected by the pilot site teams. The selected clinics for each facility are listed in each facility's report.

Unique patient: Distinct individuals for whom events are counted. When a person may have experienced more than one event of the same type (for example, completing an FOBT test) the "Unique patient" data element indicates that we are counting the number of people and not the number of events.

Appendix A
Definitions of FOBT Cases by Facility (10/14/2005)

FOBT cases are defined as a Veteran (i.e. a value of 1 for the Veteran field in the patient table) having at least 1 card that is either negative or positive between 6/1/2003 and 5/31/2004. A case is considered positive if any card is positive. The date of the first positive card is considered their index event date. A case is considered negative if none of their cards are positive. The following table describes how cases will be evaluated as a negative or positive FOBT at each facility.

Facility	FOBT Case	Positive Case
Beckley (517)	If LabTestResultCode = 1 or N	LabTestResultCode = 1
West Texas (519)	If LabTestResultCode = NEG , N, NEGATIVE, POSITIVE, or P	LabTestResultCode = POSITIVE or P
Syracuse (528)	If LabTestResultCode = 0, NEG, or POS	LabTestResultCode = POS or (LabTestResultCode = NEG and LabTestComment contains POSITIVE or 'CHANGED TO POS')
Columbia (544)	If LabTestResultCode = 0, 0., 1 or 2	LabTestResultCode = 1 or (LabTestResultCode = 0 or 2 and LabTestComment contains POSITIVE)
New Jersey (561)	If LabTestResultCode = 0, 1, NEG, NEGATIVE, or POSITIVE	LabTestResultCode = 1 or POSITIVE or (LabTestResultCode = 0, NEG, or NEGATIVE and LabTestComment contains BULK and POSITIVE)
Black Hills (568)	If LabTestComment contains NEG, NEGATIVE, or POSITIVE	If LabTestComment contains POSITIVE
Hines (578)	If LabTestResultCode = NEGATIVE or POSITIVE	If LabTestResultCode = POSITIVE
Houston (580)	If LabTestResultCode = 1, 2, N, or NEG	If LabTestResultCode = 2 or (LabTestResultCode = 1 and LabTestComment contains 'VERY POSITIVE' or 'POS X2')
Lexington (596)	If LabTestResultCode = 1 or NEG	If LabTestResultCode = 1 or (LabTestResultCode = comment and LabTestComment contains POSITIVE)
Loma Linda (605)	If LabTestResultCode = NEG or POS	If LabTestResultCode = POS or (LabTestResultCode = pending and LabTestComment contains POS) or (LabTestResultCode = comment and LabTestComment contains POSITIVE)

Facility	FOBT Case	Positive Case
Fort Wayne (610)	If LabTestResultCode = /03, /13, 0-3, 0/1, 0/2, 0/3, 0/4, 0/5, 0\3, 01/, 1-3, 1/1, 1/2, 1/3, 2-3, 2/2, 2/3, 3-3, 3/3, NEG, NWG, O/1, O/3, POS, or (comment and LabTestComment contains 0/1, 0/2, 0/3)	If LabTestResultCode = /13, 1-3, 1/1, 1/2, 1/3, 2-3, 2/2, 2/3, 3-3, 3/3, or POS or (LabTestResultCode = comment and LabTestComment contains POS, 1/3, 3/3, HEMOCCULT /1/3, or 2 of 3 WAS POSITIVE)
Pittsburgh (646)	If LabTestResultCode = 0, 1, 2, 3, 3 of 3 NEGATIVE, NEG, or POS	If LabTestResultCode = 1, 2, 3, or POS or (LabTestResultCode = comment or 4 and LabTestComment contains POS)
Portland (648)	If LabTestResultCode = 3NEG, ANEG, BEG, JNEG, MEG, NBEG, NE, NEEG, NEF, NEG, NEG\, NEGH, NEN, NETG, NEWG, NG, NMEG, POS	If LabTestResultCode = POS or (LabTestResultCode = comment and LabTestComment contains POSITIVE and LabTestComment does not contain 'APPEAR TO BE POSITIVE' or 'MAY BE POSITIVE') or (LabTestResultCode = NEG and LabTestComment contains POSITIVE or CHANGED TO POS)
Providence (650)	If LabTestResultCode = NEG or POS	If LabTestResultCode = POS or (LabTestResultCode=canc and LabTestComment contains CHANGED TO POS)
Saint Louis (657)	If LabTestResultCode = NEG, NEGATIVE X3, or POS	If LabTestResultCode = POS or (LabTestResultCode = NEG and LabTestComment contains 'Changed to Pos', 'Changed to "Pos"', or POSITIVE)
Salt Lake City (660)	If LabTestResultCode = 1 or NEG	If LabTestResultCode = 1
San Francisco (662)	If LabTestResultCode = NEG or POS	If LabTestResultCode = POS
San Juan (672)	If LabTestResultCode = NEGATIVE or POSITIVE	If LabTestResultCode = POSITIVE
Temple (674)	If LabTestResultCode = 1, NEG, NEGATIVE, POS, POSITIVE, POSTIVE	If LabTestResultCode = 1, POS, POSITIVE, POSTIVE or (LabTestResultCode = ~ or NEG and LabTestComment contains POSITIVE)
Washington DC (688)	If LabTestResultCode = NEG or POS	If LabTestResultCode = POS
Columbus (757)	If LabTestResultCode = NEGATIVE or POSITIVE	If LabTestResultCode = POSITIVE or (LabTestResultCode = NEGATIVE and LabTestComment contains POSITIVE and does not contain 'changed to NEGATIVE')

Appendix B
Colonoscopy/GI Orders Used at Each Facility

Facility Name	GI Order Item Desciption
Beckley VAMC	COLON CANCER SCREENING
	GASTROENTEROLOGY-INPATIENT
	GASTROENTEROLOGY-OUTPATIENT
Columbia VAMC	COLONOSCOPY
	GASTROENTEROLOGY
	GI (INPT)
	SCREENING COLONOSCOPY
Columbus VAOPC	Cincinnati-GI
	GI (COLON CA)
Fort Meade VAMC	FM COLONOSCOPY
Hines VAMC	GI CONSULT INP
	GI CONSULT OPT
Houston VAMC	COLONOSCOPY
	GASTROENTEROLOGY
Lexington VAMC	ACUTE GI EVENT
	COLONOSCOPY CONSULT
	COLONOSCOPY/GI
	CONTRACT COLONOSCOPY REFERRAL (LIMITED)
	GASTROENTEROLOGY - CDD INPATIENT
	GASTROENTEROLOGY - OPT OR LD
	GI CLINIC CONSULT
	GS COLON/RECTUM ABNORMALITY
Loma Linda VAMC	GASTROENTEROLOGY
Lyons VAMC	GASTROENTEROLOGY CLINIC-LY
	GASTROENTEROLOGY PROCEDURE-LY
	GASTROENTEROLOGY-INPT-EO
	GASTROENTEROLOGY-INPT-LY
	GASTROENTEROLOGY-OPT-EO
Northern Indiana HCS	COLONOSCOPY (F)
	GI ENDOSCOPY (F)
Pittsburgh HCS	GASTROENTEROLOGY ** INPATIENT **
	GASTROENTEROLOGY ** OUTPATIENT **
	GASTROENTEROLOGY HEMOCCULT POSITIVE
	GASTROENTEROLOGY SCREENING COLONOSCOPY
Portland VAMC	GI Clinic - Colonoscopy
	GI Clinic - General
Providence VAMC	COLONOSCOPY
	GI (Inpatient)
	GI (Outpatient)
	GI OUTPATIENT PROCEDURES
Saint Louis VAMC	GASTROENTERLOGY COLORECTAL SCREENING JC
	GASTROENTEROLOGY BLOOD IN STOOL JC
	GASTROENTEROLOGY CLINIC JC
	GASTROENTEROLOGY OTHER JC

Facility Name	GI Order Item Desciption
Salt Lake City VAMC	COLONOSCOPY
	GI CLINIC
San Francisco VAMC	GI CLINIC (LOCAL)
	GI PROCEDURES
San Juan VAMC	COLONOSCOPY
	GASTROENTEROLOGY (INPATIENT)
	GASTROENTEROLOGY (OUTPATIENT)
	GASTROENTEROLOGY (OUTPATIENT)FROM PCC A
	GASTROENTEROLOGY (OUTPATIENT)FROM PCC C
	GASTROENTEROLOGY (OUTPATIENT)FROM PCC D
	GASTROENTEROLOGY-OUTPATIENT-CM
	MOPC-GASTROENTEROLOGY/OUT-CM
	POPC-GASTROENTEROLOGY
Syracuse VAMC	SY GI CLINIC
Temple VAMC	AUSTIN GI
	AUSTIN GI PREPROCEDURE (COLONOSCOPY)
	TEMPLE GASTROENTEROLOGY
	TEMPLE GI IPT
	TEMPLE GI OPT
	TEMPLE GI PREPROCEDURE (COLONOSCOPY)
	WACO GI CLINIC
Washington VAMC	COLONOSCOPY
	GI-GASTROENTEROLOGY OUTPATIENT
West Texas HCS	CM-ALBQ GASTRO (GI)
	CM-AMA GI
	SURGICAL ENDOSCOPY INPATIENT

Portland VA Medical Center

Report Date: 11/29/2005
Positive FOBT Window: 6/1/03 to 5/31/04

The following measures consider individual veterans with negative or positive FOBT records in VISTA completed between 6/1/2003 and 5/31/2004 for selected clinics. The selected clinics were chosen by each participating facility, and are listed in the appendix.

The date of the earliest completed FOBT with a positive finding was selected as the index date for veterans with any positive test results. For veterans without a positive test result the date of the earliest completed FOBT with a negative result was selected as the index date.

Within the specified timeframe, 8,668 individual veterans met these criteria at the Portland VAMC. Among these 8,668 veterans, 518 veterans (5.98%) had at least one positive FOBT finding.

Overall, 124,999 individual veterans met these criteria at the 21 pilot facilities. Among these 124,999 veterans, 9,852 veterans (7.88%) had at least one positive FOBT finding.

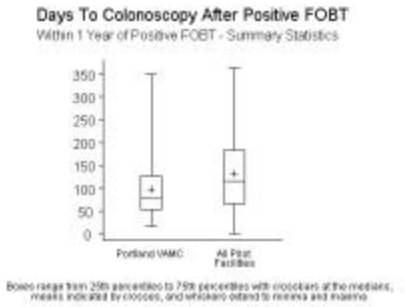
Subsequent colonoscopic follow-up to these positive FOBT findings is the focus of the following measures.

Core Measure 4: Proportion of veterans without colonoscopy performed or paid for by the VA within one year of date of positive FOBT.

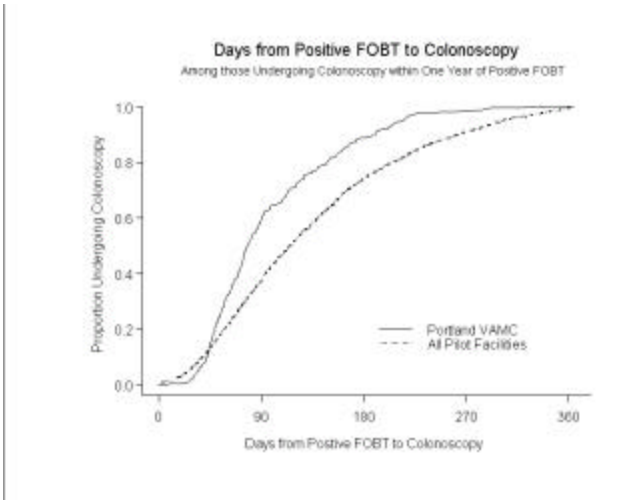
	Proportion	Veterans with Positive FOBT	Veterans without Colonoscopy Within One Year
Portland VAMC	47.68%	518	247
All Pilot Facilities	69.35%	9,852	6,832

Core Measure 1: Time from positive FOBT to colonoscopy performed or paid for by VA (for those with colonoscopy within 1 year)

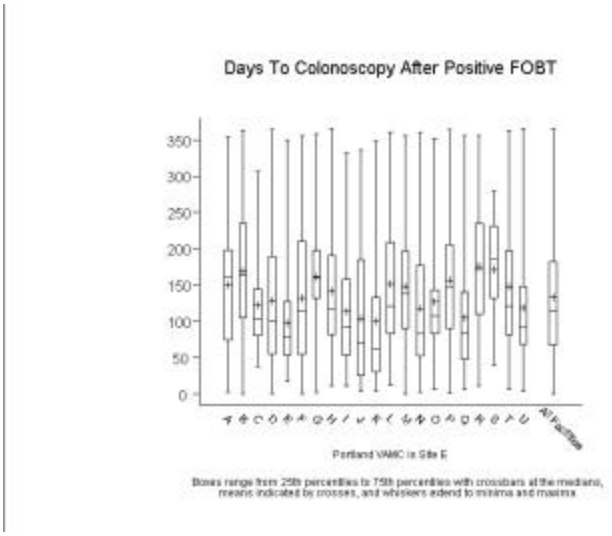
	Portland VAMC	All Pilot Facilities
Mean	98.19	133.12
Std Dev	58.82	84.58
Minimum	17	0
25th Percentile	54	67
Median	78	115
75th Percentile	127	183
Maximum	349	365



For those with positive FOBT undergoing colonoscopy within one year, the following graph displays the cumulative proportion undergoing colonoscopy over the first year.



The graph below presents summary statistics for time to colonoscopy for each of the individual pilot facilities.



Core Measure 3: Colonoscopy performed or paid for by VA within 90 days after positive FOBT (for those with colonoscopy within 1 year).

	Proportion	Veterans with Colonoscopy Within One Year	Veterans with Colonoscopy Within 90 Days
Portland VAMC	59.78%	271	162
All Pilot Facilities	37.98%	3,020	1,147

Supplemental Measure 7: Colonoscopic follow-up of positive FOBT.

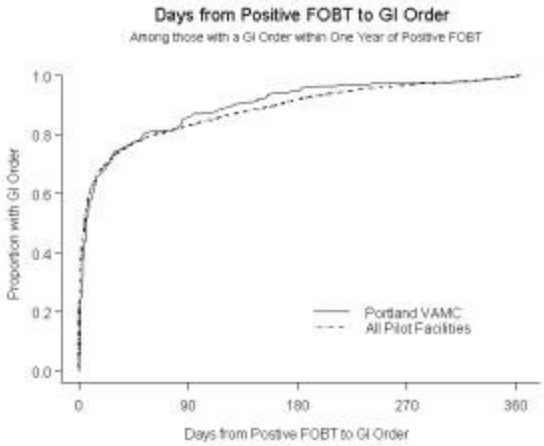
A. Proportion of veterans with a GI order date within one year of positive FOBT index date but prior to any colonoscopy performedor paid for by the VA for those veterans with a positive FOBT.

	Proportion	Veterans with Positive FOBT	Veterans with GI Order Within One Year
Portland VAMC	53.77%	518	278
All Pilot Facilities	39.28%	9,852	3,629

Summary statistics on time to GI order.

	Portland VAMC	All Pilot Facilities
Mean	38.26	41.77
Std Dev	71	78.08
Minimum	0	0
25th Percentile	2	1
Median	6	5
75th Percentile	34	36
Maximum	365	365

For those with a positive FOBT and a GI order within one year, the following graph displays the cumulative proportion with a GI order during that year.

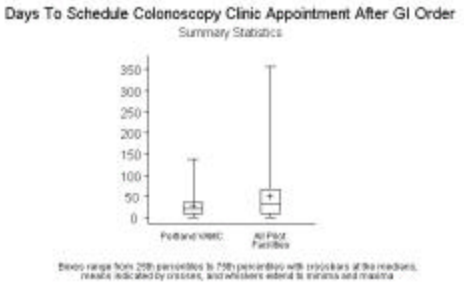


B. Proportion of veterans with an appointment created in a colonoscopy clinic following a GI order within one year of positive FOBT index date but prior to any colonoscopy performed by or paid for by the VA for those veterans with a positive FOBT.

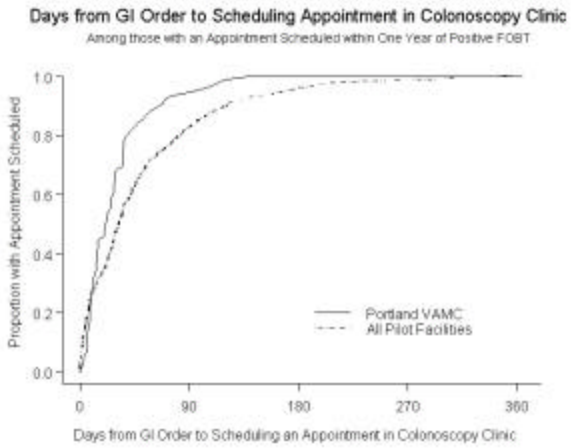
	Proportion	Veterans with GI Order	Veterans with Appointment Following GI Order Within One Year
Portland VAMC	27.34%	278	76
All Pilot Facilities	25.85%	3,629	938

Summary statistics for the time to date appointment was created in VISTA.

	Portland VAMC	All Pilot Facilities
Mean	29.17	49.61
Std Dev	28	57.12
Minimum	1	0
25th Percentile	9	9
Median	21	32
75th Percentile	36	67
Maximum	138	356

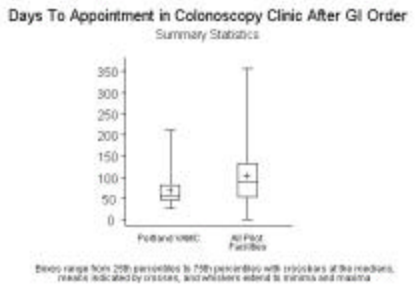


For those with a GI order within one year, the following graph displays the cumulative proportion with an appointment created in VISTA following an order during that year.

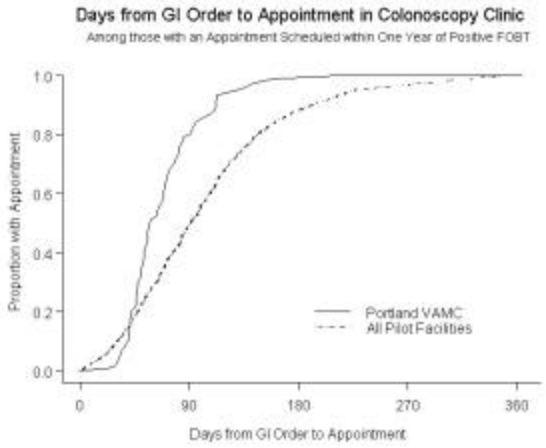


Summary statistics for the time to date of the appointment.

	Portland VAMC	All Pilot Facilities
Mean	69.11	102.86
Std Dev	33	66.97
Minimum	27	0
25th Percentile	47	54
Median	58	91
75th Percentile	82	133
Maximum	212	356



For those with a GI order within one year, the following graph displays the cumulative proportion with an appointment date following an order during that year.

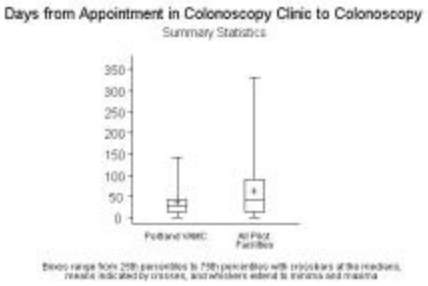


C. Proportion of veterans with a colonoscopy at the same facility as their FOBT following an appointment in a colonoscopy clinic within one year of positive FOBT index date among those veterans with a GI order and a positive FOBT.

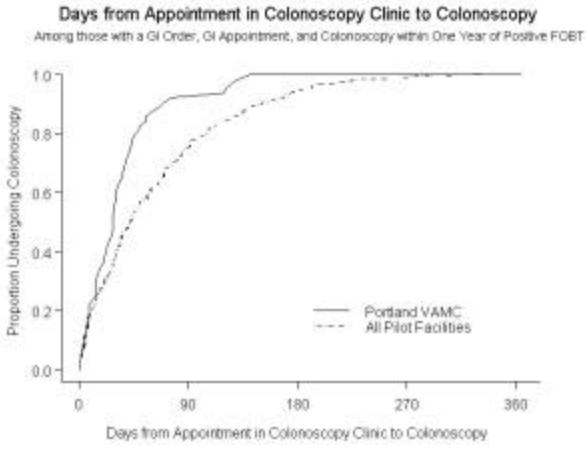
	Proportion	Veterans with GI Order and Colonoscopy Appointment	Veterans with Colonoscopy Following GI Order and Colonoscopy Appointment Within One Year
Portland VAMC	82.89%	76	63
All Pilot Facilities	41.04%	938	385

Summary statistics on time to colonoscopy.

	Portland VAMC	All Pilot Facilities
Mean	34.78	62.29
Std Dev	33	61.69
Minimum	1	1
25th Percentile	14	14
Median	28	42
75th Percentile	43	90
Maximum	141	330



For those with an appointment in a colonoscopy clinic following a GI order within one year, the following graph displays the cumulative proportion with a colonoscopy during that year.

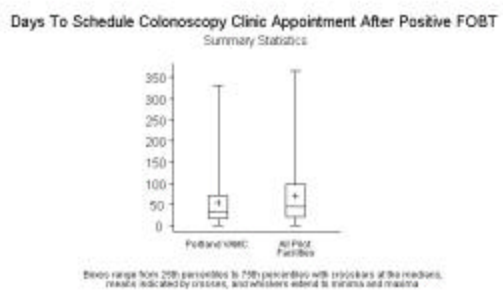


D. Proportion of veterans with a colonoscopy clinic created in VISTA within one year of positive FOBT index date among those veterans with a positive FOBT irrespective of any preceding GI order.

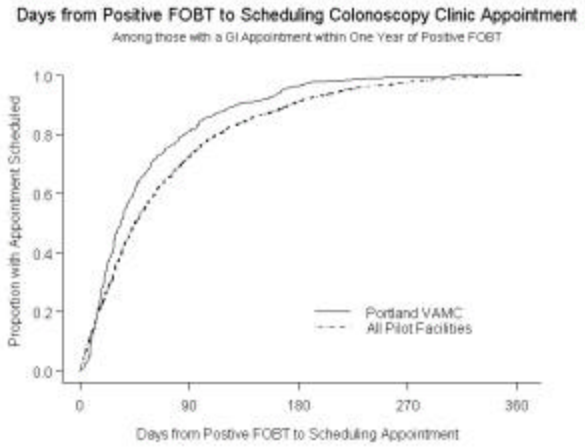
	Proportion	Veterans with Positive FOBT	Veterans with GI Appointment Within One Year
Portland VAMC	62.48%	518	323
All Pilot Facilities	31.05%	9,852	2,868

Summary statistics on time to colonoscopy clinic appointment created date.

	Portland VAMC	All Pilot Facilities
Mean	53.65	69.87
Std Dev	54	69.48
Minimum	0	0
25th Percentile	17	20
Median	34	45
75th Percentile	71	97
Maximum	331	365



For those with a positive FOBT and an appointment created in a colonoscopy clinic within one year, the following graph displays the cumulative proportion with a scheduled GI appointment during that year.

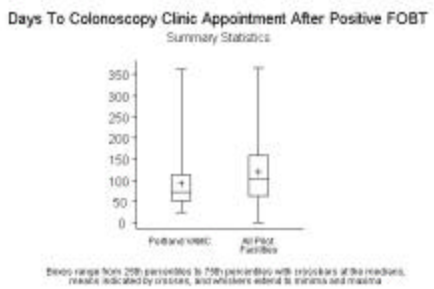


E. Proportion of veterans with a colonoscopy clinic appointment date within one year of positive FOBT index date among those veterans with a positive FOBT irrespective of any preceding GI order.

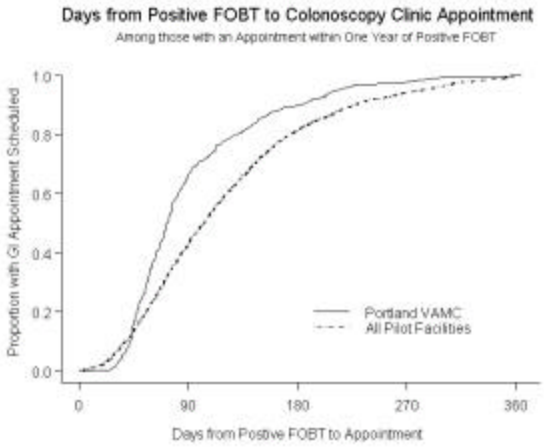
	Proportion	Veterans with Positive FOBT	Veterans with GI Appointment Within One Year
Portland VAMC	62.48%	518	323
All Pilot Facilities	31.05%	9,852	2,868

Summary statistics on time to the colonoscopy clinic appointment date.

	Portland VAMC	All Pilot Facilities
Mean	92.42	119.28
Std Dev	59	75.95
Minimum	25	1
25th Percentile	52	63
Median	73	103
75th Percentile	113	158
Maximum	362	365



For those with a positive FOBT and an appointment date in a colonoscopy clinic within one year, the following graph displays the cumulative proportion with a GI appointment date during that year.

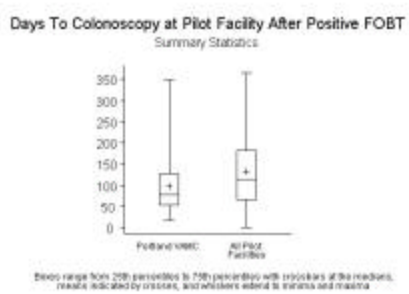


F. Proportion of veterans with a colonoscopy at the same facility as their FOBT within one year of positive FOBT index date irrespective of any preceding GI order or colonoscopy clinic appointment.

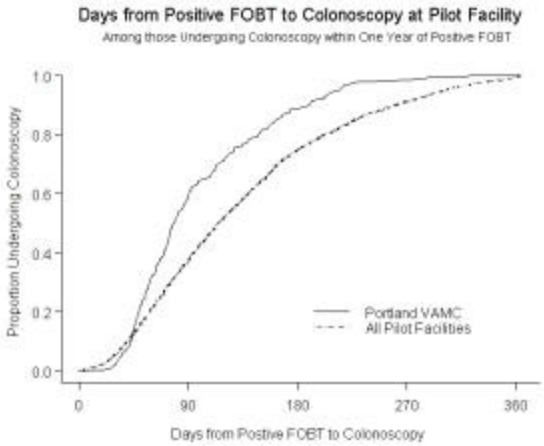
	Proportion	Veterans with Positive FOBT	Veterans with Colonoscopy Within One Year
Portland VAMC	52.42%	518	271
All Pilot Facilities	27.38%	9,852	2,529

Summary statistics on time to colonoscopy.

	Portland VAMC	All Pilot Facilities
Mean	98.19	132.91
Std Dev	59	83.75
Minimum	17	0
25th Percentile	54	67
Median	78	115
75th Percentile	127	181
Maximum	349	365



For those with a positive FOBT and a colonoscopy at the facility within one year, the following graph displays the cumulative proportion with a colonoscopy during that year.



VERSION 2: October 20, 2006

QUERI-Generated Core and Supplemental Baseline Measures for the CRC Learning Collaborative Phase I

Measure number	Measure name
Core-1	Time from positive FOBT to colonoscopy performed or paid for by VA (for those with colonoscopy within 1 year)
Core-3	Colonoscopy performed or paid for by VA within 90 days after positive FOBT (for those with colonoscopy within 1 year)
Core-4	Positive FOBT *without* follow-up colonoscopy within 1 year

Baseline Supplemental Measures

Measure Number	Measure Name
SM-7	Colonoscopic follow-up of positive FOBT
SM-7a	Time from positive FOBT to GI or colonoscopy order
SM-7b	Time from GI order to appointment in colonoscopy clinic after a positive FOBT
SM-7c	Time from appointment in colonoscopy clinic to colonoscopy at facility after GI order and positive FOBT
SM-7d	Time from positive FOBT to creation of appointment in colonoscopy clinic irrespective of GI order
SM-7e	Time from positive FOBT to date of appointment in colonoscopy clinic irrespective of GI order
SM-7f	Time from positive FOBT to colonoscopy at facility irrespective of GI order and appointment in colonoscopy clinic

Population for Core Measures

The population for the Core Measures includes all patients seen at one of the selected clinics with a positive FOBT test during the designated time period at your facility. *Follow-up may have been provided or paid for anywhere within the VHA system.*

Defined data elements (included in data definitions):
Selected clinic
FOBT-positive person

Core-1: Time from positive FOBT to colonoscopy performed or paid for by VA (for those with colonoscopy within 1 year)

Description: Number of days from positive FOBT to completion of colonoscopy for those with colonoscopy within designated time period. (*N.B.: For baseline data, this time period is one year*)

Comment: This is a measure of timeliness of colonoscopy completion *for those FOBT-positive persons who received colonoscopy*. For baseline measurement, the measure includes those who underwent colonoscopy within one year of the date of their first positive FOBT. Facilities may wish to use shorter time periods when using this measure to track the effectiveness of their improvement activities.

This measure does NOT provide information about FOBT-positive persons who had no colonoscopy performed or paid for by the VA within the designated period. These patients may have had colonoscopy after the designated time period, colonoscopy paid for by Medicare or other insurance within the designated time period, or no follow-up colonoscopy. See Core-4 for further discussion of this population.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation.

Continuous variables: Time (in days) from date of first positive FOBT test through date of completion of colonoscopy

Included population (for baseline measure):

- persons with positive FOBT 6/1/03-5/31/04; **AND**
- colonoscopy completed within one year; **AND**
- colonoscopy provided or paid for by VA.

Defined data elements (included in data definitions):
FOBT-positive date
FOBT-positive person
Colonoscopy completion date

Core-3: Colonoscopy performed or paid for by VA within 90 days after positive FOBT (for those with colonoscopy within 1 year)

Description: Percent of persons with positive FOBT undergoing colonoscopy within designated time period with completion of colonoscopy within 90 days (*N.B.: For baseline data, this time period is one year*)

Comment: This is an efficiency measure *for those FOBT-positive persons who received colonoscopy.* For baseline measurement, the measure includes those who underwent colonoscopy within one year of the date of their first positive FOBT or first presentation with CRC symptoms. Facilities may wish to use shorter time periods when using this measure to track the effectiveness of their improvement activities.

This measure does NOT provide information about FOBT-positive persons who had no colonoscopy performed or paid for by the VA within the designated period. These patients may have had colonoscopy after the designated time period, colonoscopy paid for by Medicare or other insurance within the designated time period, or no follow-up colonoscopy. See Core-4 for further discussion of this population.

There are no available data on the "appropriate" time interval between a positive FOBT and completion of the diagnostic evaluation. Ninety days has been selected arbitrarily for initial use in this measure; however, pilot facilities are encouraged to select a consensus "appropriate" time interval.

Improvement: An increase in rate

Denominator (for baseline measure):

- Persons with FOBT-positive date 6/1/03-5/31/04, **AND**
- colonoscopy completed within one year, **AND**
- colonoscopy provided or paid for by VA

Numerator (for baseline measure):

- Those in denominator with colonoscopy completion date within 90 days

Defined data elements (included in data definitions):
FOBT-positive date
FOBT-positive person
Colonoscopy completion date

Core-4: Positive FOBT *without* follow-up colonoscopy

Description: Percent of persons with positive FOBT *without* follow-up colonoscopy performed or paid for by the VA within one year.

Comment: This measure provides information about FOBT-positive persons who had no colonoscopy performed or paid for by the VA within the designated period. These patients may have had colonoscopy after the designated time period, colonoscopy paid for by Medicare or other insurance within the designated time period, or no follow-up colonoscopy. The number of patients falling into each of these (and other) categories will vary across medical centers.

To ascertain whether this core measure value represents an important opportunity to improve care, facilities must explore the reason for and the proportion of these patients that are getting colonoscopies outside the VA and those not getting colonoscopy at all. Approaches to doing this are discussed in Chapter 6 of this Improvement Guide.

Improvement: A decrease in rate

Denominator (for baseline measure):

- Persons with FOBT-positive date 6/1/03-5/31/04

Numerator (for baseline measure):

- Those in denominator *without* colonoscopy performed or paid for by the VA within one year

Defined data elements (included in data definitions):
FOBT-positive date
FOBT-positive person
Colonoscopy completion date

Supplemental Measures

SM-7: Colonoscopic follow-up of positive FOBT

SM-7a: Time from positive FOBT to order for colonoscopy or GI consult

Description: This measure assesses the time gap between the date a veteran is determined as having a positive FOBT from their lab result to the date they receive an order for a colonoscopy or a GI consult item. Time to order is measured as the number of days from the date of a positive FOBT test to colonoscopy/GI consult order date. This measure is assessed in those individuals whom have a positive FOBT test and a colonoscopy/GI consult order within 1 year of their positive FOBT date or prior to a colonoscopy performed or paid for by the VA.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. It applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans in denominator with colonoscopy/GI consult order date within one year of positive FOBT completion date but prior to any colonoscopy.

Defined data elements (included in data definitions):
FOBT positive date
FOBT positive person
Selected clinics
Colonoscopy/GI consult order item
Colonoscopy/GI consult order date

SM-7b: Time from GI order to appointment in colonoscopy clinic after a positive FOBT

Description: This measure assesses the time gap between the date of the colonoscopy/GI order for the veteran with a positive FOBT to the date they receive an appointment in a colonoscopy clinic. The items that are measured here include the date of which the appointment was created in the local VISTA system as well as the date of the actual appointment. Time to appointment created is measured as the number of days from the colonoscopy/GI consult order date to the date the appointment was made in VISTA. Time to appointment date is measured as the number of days from the colonoscopy/GI consult order date to the date the veteran is scheduled to appear in the colonoscopy clinic. This measure is assessed in those individuals whom have a positive FOBT test, a colonoscopy/GI consult order, and a colonoscopy clinic appointment within 1 year of their positive FOBT date or prior to a colonoscopy performed or paid for by the VA.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. It applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04 and a colonoscopy or GI order within one year of their positive FOBT test.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with colonoscopy/GI consult order date and an appointment in a colonoscopy clinic within one year of positive FOBT completion date but prior to any colonoscopy.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Colonoscopy/GI consult order date
Appointment Created Date
Appointment Date
Colonoscopy Clinic

SM-7c: Time from appointment in colonoscopy clinic to colonoscopy at facility after GI order and positive FOBT

Description: This measure assesses the time gap between the date of appointment in a colonoscopy clinic to the date the colonoscopy was completed in veterans who also have a colonoscopy/GI consult and a positive FOBT. Time to colonoscopy is measured as the number of days from the colonoscopy clinic appointment date to the date of the colonoscopy completion date at the participating facility. This measure is assessed in those individuals whom have a positive FOBT test, a colonoscopy/GI consult order, and a colonoscopy clinic appointment, and a colonoscopy procedure within 1 year of their positive FOBT.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. Applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04 and a colonoscopy/GI order, and a colonoscopy clinic appointment within one year of their positive FOBT test.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with colonoscopy/GI consult order date, an appointment in a colonoscopy clinic, and a colonoscopy completion date at the facility within one year of positive FOBT date.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Colonoscopy/GI consult order item
Colonoscopy/GI consult order date
Appointment Created Date
Appointment Date
Colonoscopy Clinic
Colonoscopy Completion Date

SM-7d: Time from positive FOBT to creation of appointment in colonoscopy clinic irrespective of GI order

Description: This measure assesses the time gap between the date a veteran is determined as having a positive FOBT from their lab result to the date they have an appointment in a colonoscopy clinic created in the local VISTA system. Time to appointment created is measured as the number of days from the positive FOBT date to the date the appointment was made in VISTA. This measure is assessed in those individuals whom have a positive FOBT test and a colonoscopy clinic appointment within 1 year of their positive FOBT date or prior to a colonoscopy performed or paid for by the VA.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. Applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with an appointment in a colonoscopy clinic within one year of positive FOBT completion date but prior to any colonoscopy.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Appointment Created Date
Colonoscopy Clinic

SM-7e: Time from positive FOBT to date of appointment in colonoscopy clinic irrespective of GI order

Description: This measure assesses the time gap between the date a veteran is determined as having a positive FOBT from their lab result to the date they are scheduled to appear for their appointment in a colonoscopy clinic. Time to appointment date is measured as the number of days from the positive FOBT date to the date the veteran is scheduled to appear for their appointment. This measure is assessed in those individuals whom have a positive FOBT test and a colonoscopy clinic appointment within 1 year of their positive FOBT date or prior to a colonoscopy performed or paid for by the VA.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. Applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with an appointment in a colonoscopy clinic within one year of positive FOBT completion date but prior to any colonoscopy.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Appointment Date
Colonoscopy Clinic

SM-7e: Time from positive FOBT to colonoscopy at facility irrespective of GI order and appointment in colonoscopy clinic

Description: This measure assesses the time gap between the date a veteran is determined as having a positive FOBT from their lab result to the date their colonoscopy is completed at the facility were they had their FOBT test. Time to colonoscopy is measured as the number of days from the positive FOBT date to the date the colonoscopy was completed. This measure is assessed in those individuals whom have a positive FOBT test and a colonoscopy completed datet within 1 year of their positive FOBT date.

Comment: This is a measure of thoroughness and timeliness of initiating the colonoscopic follow-up process for FOBT-positive patients. Applies to FOBTs from selected clinics. Persons having care at facilities outside of where their positive FOBT test was measured were excluded.

Improvement: A decrease in the mean, median, and/or range; a decrease in variation

Continuous variables: Mean, median, and range of time (in days) from the date of first positive FOBT test through date of order initiation for colonoscopy or GI consult.

Denominator (for baseline measure):

- FOBT positive veterans with positive test between 6/1/03 and 5/31/04.
- Persons having specific colon cancer related care at facilities outside of where their positive FOBT test was measured were excluded.

Numerator (for baseline measure):

- FOBT positive veterans with a colonoscopy at the facility within one year of the FOBT.

Defined data elements (included in data definitions):
FOBT date
FOBT positive person
Selected clinics
Colonoscopy Completion Date

Data definitions

Note: Terms in each definition which are *underlined and in italics* have their own data definitions.

Appointment created date
Appointment date
Colonoscopy Clinic
Colonoscopy completion date
Colonoscopy/GI Consult order item
Colonoscopy/GI Consult order date
Colonoscopy/GI Consult order completion date
FOBT Completion Date
FOBT Index Date
FOBT Record
FOBT Positive Date
FOBT-positive person
Selected clinic
Unique patient

Appointment created date: This is the date that the appointment record indicates the appointment was made. In VISTA it corresponds to field number 20 of the appointment multiple in the Patient file (i.e. ^DPT global).

Appointment date: This is the date that the appointment record indicates as the date of the appointment. In VISTA it corresponds to field number .001 of the appointment multiple in the Patient file (i.e. ^DPT global).

Colonoscopy Clinic: These are clinics at each facility associated with colonoscopies that were performed subsequent to positive FOBT. In VISTA this corresponds to field .01 in the Hospital Location file (i.e. ^SC global).

Colonoscopy completion date:

Core Measures: The earliest procedure date for a colonoscopy provided by any VA facility or paid for by the VA. Found in the National Patient Care Database (NPCD) data (Austin SAS datasets).

Supplemental Measures: The earliest procedure date for a colonoscopy provided by the pilot facility. Found in the NPCD data (Austin SAS datasets).

Colonoscopy/GI Consult order item: This is the orderable item at a given facility that corresponds to a colonoscopy or GI consult order. In VISTA it is the .01 field of the Orderable Items file (i.e. ^ORD(101.43 global). Appendix B represents the unique colonoscopy/GI order items by facility for positive FOBT veterans ordered in the 1 year subsequent to their FOBT date.

Colonoscopy/GI Consult order date: The date that an order for colonoscopy or GI consult (whichever is earliest) has started. In VISTA this corresponds to the start date field (i.e. field number 21) for item being ordered in Appendix B (i.e. field .1) in the Orders file (i.e. ^OR(100 global).

Colonoscopy/GI Consult order completion date: The date the colonoscopy or GI consult order is completed by the specialty clinic. If normal procedures are followed, this will be equal to or after the *colonoscopy/GI consult order date* and prior to or equal to the *appointment scheduled date* for a colonoscopy. In VISTA this corresponds to the completed field (i.e. field number 66) for item being ordered in Appendix B (i.e. field .1) in the Orders file (i.e. ^OR(100 global). Exclusions: orders that are discontinued or canceled (as indicated by the field 5 (i.e. Status) in the Orders file (i.e. ^OR(100 global).

FOBT Completion date: This is the date the report of the lab FOBT specimen was completed. In VISTA this corresponds to the .03 field of the chemistry multiple of the Lab Data file (i.e. ^LR global).

FOBT Index Date: For those with any indication of a positive FOBT result the index date was chosen to be the earliest completion date of *FOBT records* with positive results. For those with no indication of a positive test result the index date was chosen to be the earliest completion date of *FOBT records* with negative results.

FOBT Record: Any Lab Record of an FOBT test in VISTA Lab Package for which a negative result was recorded or for which an indication of a positive result could be found. Algorithms to find such indications of positive test results varied across sites but in general these indications of a positive test result were extracted from both the lab test result value code and the lab test comment fields. These records had to have a selected clinic as the requesting location for the FOBT. The algorithm used to identify positive lab results is presented in the Appendix A.

FOBT Positive Date: The *FOBT completion date* for the first *FOBT record* with a positive result for a person. Same date as the *FOBT index date* for an individual with any positive FOBT.

FOBT-positive Person : *individual with any record of a positive FOBT* processed by the lab in the designated time period with a hospital location code on the laboratory report from a *selected clinic* at the pilot facility.

Selected clinic: Clinics were selected by the pilot site teams. The selected clinics for each facility are listed in each facility's report.

Unique patient: Distinct individuals for whom events are counted. When a person may have experienced more than one event of the same type (for example, completing an FOBT test) the "Unique patient" data element indicates that we are counting the number of people and not the number of events.

Appendix A
Definitions of FOBT Cases by Facility (10/14/2005)

FOBT cases are defined as a Veteran (i.e. a value of 1 for the Veteran field in the patient table) having at least 1 card that is either negative or positive between 6/1/2003 and 5/31/2004. A case is considered positive if any card is positive. The date of the first positive card is considered their index event date. A case is considered negative if none of their cards are positive. The following table describes how cases will be evaluated as a negative or positive FOBT at each facility.

Facility	FOBT Case	Positive Case
Beckley (517)	If LabTestResultCode = 1 or N	LabTestResultCode = 1
West Texas (519)	If LabTestResultCode = NEG , N, NEGATIVE, POSITIVE, or P	LabTestResultCode = POSITIVE or P
Syracuse (528)	If LabTestResultCode = 0, NEG, or POS	LabTestResultCode = POS or (LabTestResultCode = NEG and LabTestComment contains POSITIVE or 'CHANGED TO POS')
Columbia (544)	If LabTestResultCode = 0, 0., 1 or 2	LabTestResultCode = 1 or (LabTestResultCode = 0 or 2 and LabTestComment contains POSITIVE)
New Jersey (561)	If LabTestResultCode = 0, 1, NEG, NEGATIVE, or POSITIVE	LabTestResultCode = 1 or POSITIVE or (LabTestResultCode = 0, NEG, or NEGATIVE and LabTestComment contains BULK and POSITIVE)
Black Hills (568)	If LabTestComment contains NEG, NEGATIVE, or POSITIVE	If LabTestComment contains POSITIVE
Hines (578)	If LabTestResultCode = NEGATIVE or POSITIVE	If LabTestResultCode = POSITIVE
Houston (580)	If LabTestResultCode = 1, 2, N, or NEG	If LabTestResultCode = 2 or (LabTestResultCode = 1 and LabTestComment contains 'VERY POSITIVE' or 'POS X2')
Lexington (596)	If LabTestResultCode = 1 or NEG	If LabTestResultCode = 1 or (LabTestResultCode = comment and LabTestComment contains POSITIVE)
Loma Linda (605)	If LabTestResultCode = NEG or POS	If LabTestResultCode = POS or (LabTestResultCode = pending and LabTestComment contains POS) or (LabTestResultCode = comment and LabTestComment contains POSITIVE)

Facility	FOBT Case	Positive Case
Fort Wayne (610)	If LabTestResultCode = /03, /13, 0-3, 0/1, 0/2, 0/3, 0/4, 0/5, 0\3, 01/, 1-3, 1/1, 1/2, 1/3, 2-3, 2/2, 2/3, 3-3, 3/3, NEG, NWG, O/1, O/3, POS, or (comment and LabTestComment contains 0/1, 0/2, 0/3)	If LabTestResultCode = /13, 1-3, 1/1, 1/2, 1/3, 2-3, 2/2, 2/3, 3-3, 3/3, or POS or (LabTestResultCode = comment and LabTestComment contains POS, 1/3, 3/3, HEMOCCULT /1/3, or 2 of 3 WAS POSITIVE)
Pittsburgh (646)	If LabTestResultCode = 0, 1, 2, 3, 3 of 3 NEGATIVE, NEG, or POS	If LabTestResultCode = 1, 2, 3, or POS or (LabTestResultCode = comment or 4 and LabTestComment contains POS)
Portland (648)	If LabTestResultCode = 3NEG, ANEG, BEG, JNEG, MEG, NBEG, NE, NEEG, NEF, NEG, NEG\, NEGH, NEN, NETG, NEWG, NG, NMEG, POS	If LabTestResultCode = POS or (LabTestResultCode = comment and LabTestComment contains POSITIVE and LabTestComment does not contain 'APPEAR TO BE POSITIVE' or 'MAY BE POSITIVE') or (LabTestResultCode = NEG and LabTestComment contains POSITIVE or CHANGED TO POS)
Providence (650)	If LabTestResultCode = NEG or POS	If LabTestResultCode = POS or (LabTestResultCode=canc and LabTestComment contains CHANGED TO POS)
Saint Louis (657)	If LabTestResultCode = NEG, NEGATIVE X3, or POS	If LabTestResultCode = POS or (LabTestResultCode = NEG and LabTestComment contains 'Changed to Pos', 'Changed to "Pos"', or POSITIVE)
Salt Lake City (660)	If LabTestResultCode = 1 or NEG	If LabTestResultCode = 1
San Francisco (662)	If LabTestResultCode = NEG or POS	If LabTestResultCode = POS
San Juan (672)	If LabTestResultCode = NEGATIVE or POSITIVE	If LabTestResultCode = POSITIVE
Temple (674)	If LabTestResultCode = 1, NEG, NEGATIVE, POS, POSITIVE, POSTIVE	If LabTestResultCode = 1, POS, POSITIVE, POSTIVE or (LabTestResultCode = ~ or NEG and LabTestComment contains POSITIVE)
Washington DC (688)	If LabTestResultCode = NEG or POS	If LabTestResultCode = POS
Columbus (757)	If LabTestResultCode = NEGATIVE or POSITIVE	If LabTestResultCode = POSITIVE or (LabTestResultCode = NEGATIVE and LabTestComment contains POSITIVE and does not contain 'changed to NEGATIVE')

Appendix B
Colonoscopy/GI Orders Used at Each Facility

Facility Name	GI Order Item Desciption
Beckley VAMC	COLON CANCER SCREENING
	GASTROENTEROLOGY-INPATIENT
	GASTROENTEROLOGY-OUTPATIENT
Columbia VAMC	COLONOSCOPY
	GASTROENTEROLOGY
	GI (INPT)
	SCREENING COLONOSCOPY
Columbus VAOPC	Cincinnati-GI
	GI (COLON CA)
Fort Meade VAMC	FM COLONOSCOPY
Hines VAMC	GI CONSULT INP
	GI CONSULT OPT
Houston VAMC	COLONOSCOPY
	GASTROENTEROLOGY
Lexington VAMC	ACUTE GI EVENT
	COLONOSCOPY CONSULT
	COLONOSCOPY/GI
	CONTRACT COLONOSCOPY REFERRAL (LIMITED)
	GASTROENTEROLOGY - CDD INPATIENT
	GASTROENTEROLOGY - OPT OR LD
	GI CLINIC CONSULT
	GS COLON/RECTUM ABNORMALITY
Loma Linda VAMC	GASTROENTEROLOGY
Lyons VAMC	GASTROENTEROLOGY CLINIC-LY
	GASTROENTEROLOGY PROCEDURE-LY
	GASTROENTEROLOGY-INPT-EO
	GASTROENTEROLOGY-INPT-LY
	GASTROENTEROLOGY-OPT-EO
Northern Indiana HCS	COLONOSCOPY (F)
	GI ENDOSCOPY (F)
Pittsburgh HCS	GASTROENTEROLOGY ** INPATIENT **
	GASTROENTEROLOGY ** OUTPATIENT **
	GASTROENTEROLOGY HEMOCCULT POSITIVE
	GASTROENTEROLOGY SCREENING COLONOSCOPY
Portland VAMC	GI Clinic - Colonoscopy
	GI Clinic - General
Providence VAMC	COLONOSCOPY
	GI (Inpatient)
	GI (Outpatient)
	GI OUTPATIENT PROCEDURES
Saint Louis VAMC	GASTROENTERLOGY COLORECTAL SCREENING JC
	GASTROENTEROLOGY BLOOD IN STOOL JC
	GASTROENTEROLOGY CLINIC JC
	GASTROENTEROLOGY OTHER JC

Facility Name	GI Order Item Desciption
Salt Lake City VAMC	COLONOSCOPY
	GI CLINIC
San Francisco VAMC	GI CLINIC (LOCAL)
	GI PROCEDURES
San Juan VAMC	COLONOSCOPY
	GASTROENTEROLOGY (INPATIENT)
	GASTROENTEROLOGY (OUTPATIENT)
	GASTROENTEROLOGY (OUTPATIENT)FROM PCC A
	GASTROENTEROLOGY (OUTPATIENT)FROM PCC C
	GASTROENTEROLOGY (OUTPATIENT)FROM PCC D
	GASTROENTEROLOGY-OUTPATIENT-CM
	MOPC-GASTROENTEROLOGY/OUT-CM
	POPC-GASTROENTEROLOGY
Syracuse VAMC	SY GI CLINIC
Temple VAMC	AUSTIN GI
	AUSTIN GI PREPROCEDURE (COLONOSCOPY)
	TEMPLE GASTROENTEROLOGY
	TEMPLE GI IPT
	TEMPLE GI OPT
	TEMPLE GI PREPROCEDURE (COLONOSCOPY)
	WACO GI CLINIC
Washington VAMC	COLONOSCOPY
	GI-GASTROENTEROLOGY OUTPATIENT
West Texas HCS	CM-ALBQ GASTRO (GI)
	CM-AMA GI
	SURGICAL ENDOSCOPY INPATIENT